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REVIEW OF MILITARY LITERATURE

*THE COMMAND AND GENERAL STAFF SCHOOL
QUARTERLY*

Editor
MAJOR FRED DURING

FOREWORD

The object of this publication is a systematic review of current military literature, through cataloging articles of professional value, in selected military and naval periodicals, in the domestic and foreign field.

Articles from foreign periodicals are treated by translations of titles and digests of contents; material of particular importance is covered more extensively in a Section of "Abstracts of Foreign-language Articles."

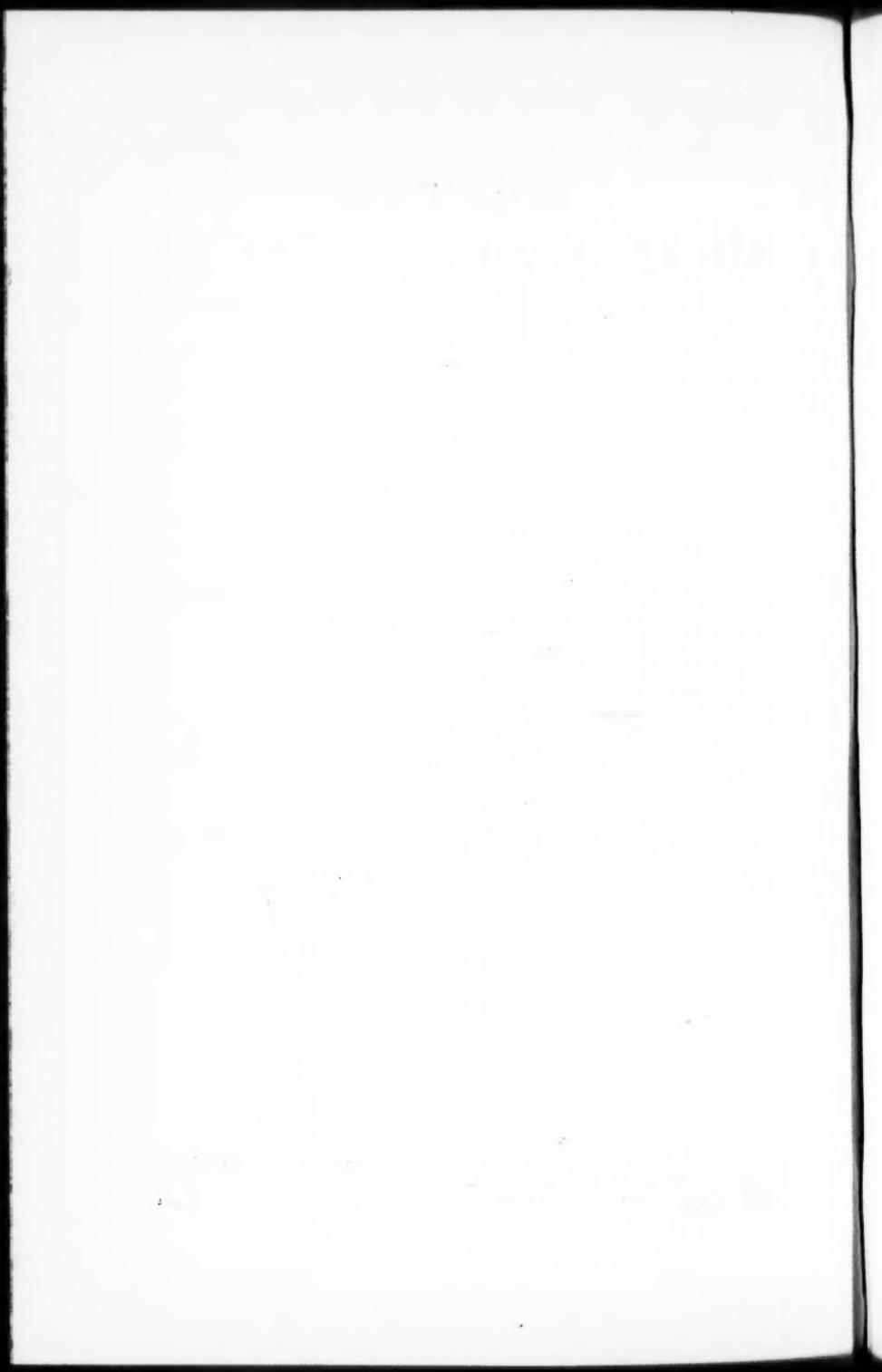
A "Book Review" Section contains reviews of outstanding books, recently accessioned, which are of particular professional significance.

This material is published as a guide to modern military tendencies and to inspire vigorous thought on the subjects treated.

The opinions expressed by authors are not necessarily official.

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Lt.Col. N.B. Briscoe: *Revue de Cavalerie* (November-December, 1934).
 Maj. P.C. Bullard: *Revue du Génie Militaire* (November-December, 1934).

Maj. F. During: *Militärwissenschaftliche Mitteilungen* (October, November, December, 1934); *Militär-Wochenblatt* (4 December, 1934-4 March, 1935, inclusive); *Revue Militaire Suisse* (October, November, December, 1934); *Rivista di Artiglieria e Genio* (October, November, 1934); *Wehr und Waffen* (October, November, December, 1934).

1st Lieut. J.I. Greene: *Bulletin Belge des Sciences Militaires* (October, November, December, 1934).

Capt. G.B. Guenther: *Sanct Christophorus* (October, November, December, 1934); *Wissen und Wehr* (October, November, December, 1934).

Lieut. R.E. Moore: *Revue d'Infanterie* (October, November, December, 1934).

1st Lieut. M.D. Taylor: *Esercito e Nazione* (October, November, December, 1934); *Revista del Ejercito y de la Marina* (October, November, December, 1934); *Revue d'Artillerie* (October, November, December, 1934).

1st Lieut. H.D. Vogel: *Pioniere* (November, 1934).

Maj. C.H. Wash: *Revue de l'Armée de l'Air* (October, November, December, 1934).

Maj. C.A. Willoughby: *Revue Militaire Francaise* (October, November, December, 1934).

Section 1
ORIGINAL MILITARY STUDIES

This section contains original contributions by graduates of The Command and General Staff School.

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**TACTICAL AND STRATEGICAL EFFECTS OF THE
DEVELOPMENT OF THE FAST TANK**

By Major L.S. Hobbs, Infantry

In approaching this subject we must, from the start, acknowledge the technical difficulties incident to securing the fast tanks with which we have to deal.

Many individuals will maintain that no definite and generally acceptable doctrines relative to the tactical and strategical use of fast tanks can be established until the essential characteristics of the tank with which the Army is to be equipped are determined with a fair degree of certainty. I take exception to that conception. In this highly mechanized age, when each year competing automotive industries supply new models with many new features, it is reasonable to feel assured that if the tasks we desire the tanks to perform are determined, the tanks will be forthcoming. The evolution of the tank to fit our tactical and strategical needs is as inevitable as was that of the automobile and the airplane.

While it cannot be denied that in a future emergency we will have to start with the material at hand, our Army should strive to improve its position in this regard as far as possible, and to develop methods for employing new models. In general, most successful armies have been those whose leaders have been quickest to appreciate new possibilities, and to develop methods for exploiting the advantages offered thereby.

The Infantry Field Manual has defined a fast tank as "a tank that has a sustained cross-country speed of ten (10) miles per hour or more." In view of recent American, British,

and Russian tank developments and tests, this definition is surely conservative. All such tanks have shown speed far in excess of ten miles per hour, and, while such increased speeds probably would not normally be used, they are valuable because they indicate a reserve of power capable of carrying the tank over the majority of the terrain where tanks may expect to operate, at about the conservative rate of ten miles per hour. The tank may also be in a position to profit from a possible burst of speed.

Combined with speed must be the qualities that will permit the tank to travel long distances and for considerable periods of time without serious mechanical difficulties. Fast and reasonably dependable tanks have already been produced in small numbers, and there can be no question that further developments will continue, and that the armies of the world must learn to use this weapon to the greatest advantage.

ORGANIZATION

Presupposing the availability of fast tanks in sufficient numbers to utilize them as desired, the organization of units has a direct bearing on the success of our mission. Our present organization appears, in the main, to be satisfactory. Here we find a General Headquarters reserve, organized into regiments, and an allotment to infantry and cavalry divisions. The allotment of these tanks in specific instances will be based on the plan of maneuver, with a priority series.

General Headquarters will allot to Army. Army will allot to leading missions, Corps and Army reserve. Corps, in turn, will allot to leading missions, Divisions, and Corps reserve.

The present triangular organization within the tank units proper, that is, three battalions to the regiment, three companies to the battalion, and three platoons to the company, also appears to be satisfactory. Within the tank platoon, it is probable that the present number of tanks (five), could and should be reduced to three, in order to secure more satisfactory control and facilitate communication. The presence of the platoon commander in an individual tank as a member of the crew, or in a vehicle capable of accompanying the platoon is necessary.

The British, who have led the world in tank development and employment, have found need for two tanks in their

organization; small, fast tanks for purposes of command, communication, reconnaissance and security, and medium fast tanks which constitute the principal fighting weapon of the organization. However, in most recent maneuvers the trend seems to be toward the utilization of only light tanks.

Add to a tank organization as noted above a mobile weapon that can accompany the tanks to aid in overcoming antitank defense weapons of the enemy, and we come to our task well equipped with an efficient machine.

TASKS

The Infantry Field Manual states: "The combat functions of tanks are strictly offensive. Although tanks may assist in the defense, they do so by offensive action. The tactical employment of tanks now in our services comprise the following roles:

- (1) As leading tanks.
- (2) As accompanying tanks.

"Exploitation by tanks: For exploitation, fast tanks will be especially suitable. When tanks are employed for exploitation they should, if practicable, attack the hostile general reserves. By so doing they may prevent a hostile counter-attack and bring about decisive results."

We will therefore hold to the terms of leading, accompanying, and exploiting tanks used in the *Infantry Field Manual* as adequate for our needs of terminology.

APPROACH MARCHES

With the advent of the fast tank, the problem of getting the tanks to the battlefield seems to be vastly simplified.

With the demountable-track tank the flexibility of the support to be rendered by the mass of tanks held in General Headquarters reserve is greatly increased. Tank concentrations can be shifted from one part of the front to another on short notice and without delay. Tank parks can be located farther to the rear, thereby better avoiding the enemy artillery, and avoid congesting forward areas. The approach march, which, with the old tanks, took one or two nights, can be accomplished in a few hours with the fast tanks. The detraining point will no longer be needed. The assaulting positions

can be much farther back from the line of departure, thereby better avoiding enemy fire, insure fewer casualties, and afford better preparation for the assault. Speed in the approach march, combined with the absence of the characteristic noise of the slow tank, will permit us to concentrate our fast tanks at any desired place without the knowledge of the enemy, and secure the element of surprise, which was difficult with the slow tank.

ACCOMPANYING TANKS

Let us again quote the *Infantry Field Manual* regarding the accompanying tank: "The mission of accompanying tanks is to render close cooperative assistance to the advance of the assaulting waves of attacking troops. They reduce points of resistance that may develop immediately to the front or flanks of the units to which the tanks are attached. Slow or fast tanks and light or medium tanks may be used, but *fast* light tanks are best suited to this mission."

As the name indicates, accompanying tanks are used in direct conjunction with infantry troops. Infantry mobility on the battlefield will be enhanced by a more effective assistance in breaking through the bands of small-arms fire which habitually covers the hostile front, and which pin the unarmoured soldier to the ground. From the viewpoint of the infantry, this is the principal mission of the tanks. To serve such a purpose tanks must, above all other things, be invulnerable to small-arms fire. But, since it is impracticable to carry sufficient armor to protect against shells, combat machines must also have a speed, maneuverability, and reliability on average terrain that will make them difficult targets for artillery.

The one redeeming trait of the present slow accompanying tank, and the one so much referred to by those who think high speed undesirable, is the fact that they cannot "run away" from the infantry which they accompany. Increased speed in no way presupposes such a running away. It does presuppose a power of cooperation which will permit the use of limited objectives, and beyond which they will not move until these objectives are occupied by foot troops. The speed of the tanks will be used for changes of direction, seeking sheltered avenues of approach, and the neutralization of antitank weapons. The speed of the fast tank will permit a more con-

tinuous advance in assistance of the foot troops because the fast tanks can seize an objective, assemble, receive additional orders, and, with a new burst of speed, maneuver on to a new objective. The fast tank in an accompanying role can not only do everything that the slow tank can do, but it can do it better, and many more things in addition. No one can dispute that the following facts relating to the fast tank all tend to favor such a vehicle over the slow tank:

- (1) They can cover more ground in a much shorter space of time.
- (2) They can utilize cover and concealment to better advantage.
- (3) They can engage and crush hidden machine guns more readily.
- (4) They can be assigned a wider zone of action.
- (5) Their ability to employ sudden bursts of speed and to zigzag rapidly reduces the danger of being put out of action by direct hits—the only hits that materially affect tanks.

We can therefore expect that fast accompanying tanks will permit the more rapid advance of the foot troops, with fewer casualties. The rate of the foot troops will remain unchanged, but the time consumed in gaining the necessary rifle fire superiority to permit an advance will be materially lessened.

Once light fast tanks penetrate a hostile position their infiltration will be so rapid that the defender will have a poor chance of withdrawing his infantry on either side of the breach in time to rally and build up a fresh line of resistance to the rear. Because of their speed and armor, tanks are clearly the ideal agents of infiltration or "soft spot" tactics, that is, to push along the line of least resistance, while reserves deal with the groups of the defense that still hold out. In 1918 these tactics brought the Germans great, but limited success, as the infiltration was carried out by the slow-moving and non-bullet proof infantry. Today it can be carried out by fast tanks, less susceptible to the risk of being checked by flanking machine guns.

We will now leave the accompanying tanks and go to the leading tanks, where our subject offers the widest field of development. However, we will keep in mind that we have

not exhausted the subject of the accompanying tank, and that we will offer additional utilization of these with the leading tanks.

LEADING TANKS

The idea of leading tanks is based on the supposition that tanks can assist the attack by passing well through and beyond or around the enemy main battle position, and, by action against artillery, reserves, and communication systems, open the way for its success. The *Infantry Field Manual* has the following to say on this subject:

"The purpose of leading tanks is to assist in the main effort of a general attack by making a breach through a strongly organized defensive line with the ultimate mission of disrupting artillery in position and strong local reserves available to the enemy for counterattacking and closing the gap. Leading tanks normally operate under the control of a unit larger than a division, usually a corps. This is necessary to insure that their own effort will be well coordinated when, as frequently occurs, their zone of action includes, in whole or in part, the zones of action of adjacent divisions; also to insure cooperation between them and the long-range artillery when they pass beyond the range of divisional artillery.

"A battalion of leading tanks will usually form for attack in line of companies in column of platoons deployed in line. Battalions are arranged in line or other formation suited to the situation. The number of regiments in the leading force depends upon the needs of the situation and the number of tank units available.

"The zone of action of the leading tanks is determined by the commander from whom the commander of the leading tanks receives his tactical orders. Usually this zone will be definitely prescribed only through the hostile main position, since beyond it the situation, as it develops, may determine the direction and extent of the leading tank action.

"The waves of leading tanks cross the line of departure between time limits fixed in orders. The attack starts at a definite initial speed. Subsequently the speed is coordinated by guiding upon a base unit or by means of a simple time schedule. Zone or routes for the advance of subordinate units may be prescribed. The depth of advance depends chiefly upon the speed of the tanks, the depth and strength of the hostile defense, and the terrain. Other factors may be the condition of the tanks, the training of the personnel, the daylight available, etc. Under favorable conditions the Mark VIII tank may penetrate to a depth of from 5,000 to 10,000 yards. Fast tanks might effect deeper and speedier penetrations.

"The principal objectives in the order in which encountered are the main hostile position, to include the regimental reserve line; artillery in position, command posts, communications, and small local reserves; and, finally, the large local reserves. In overrunning the hostile main position the leading tanks attack organized terrain features, such as centers of resistance, strong points, groups of automatic arms, and antitank weapons. Penetrating further, they take advantage of every opportunity to disrupt measures taken by the enemy to meet the attack.

"Routes for the return of leading tanks to their assembly points are planned in advance so that their appearance moving counter to our direction of attack may not be mistaken at a distance for a hostile

counterattack. These routes may be outside the zone of action as prescribed for their attack.

"Communication with the leading tanks will be provided for in the plan of signal communication of the unit to which the leading tanks are attached. Airplanes are particularly useful in observing and reporting the progress of the tank attack. The use of light tanks, airplanes, or both, for messenger service may be advisable."

A large body of fast tanks moving into enemy territory will unquestionably be of powerful assistance to assaulting troops, but in order to get to their objective as at present contemplated, they must pass through the main hostile position, beyond the assistance of infantry, and in a zone where artillery support will be difficult and at times impossible. The organization of such a force must unquestionably include a close supporting weapon, and must insure close control of its units.

Our present policy for leading tanks is based upon the idea that such tanks will move to the attack shortly before the assault troops, pass over the enemy position and through artillery fire, both of our own and that of the enemy. The enemy fire of course cannot be controlled, and the tank units must take their chances. But coordination with our own artillery must be secured. Can we afford to lift preparation fires, or do without them on the selected front, for a sufficient period to permit the leading tanks to pass through? In passing through the position, how long will it be before the artillery can open fire? Can the counterbattery and harassing fire of the artillery be coordinated with this tank move? Can an Army or Corps commander risk the heavy losses that might result from failure of proper coordinating effects?

If the commander is far-sighted, and considers his fast tanks powerful supporting weapons to be used to further the general scheme of maneuver, might he not well decide to give a mission to the artillery on one part of the front and a mission to the leading tanks on another part? In answer to this last question we have no concrete example on which to base our conclusions. But we can take the example of the British at Cambrai, remember the initial success attained by following just such a procedure, and visualize what the results might have been if fast tanks had been available at that time.

Such a plan would simplify the coordination of artillery and tanks, and leave the bulk of the artillery to support the attack on other parts of the front. These questions afford a

subject for much thought, but the answers do not fall within the scope of this discussion.

It is a fundamental principle that we should bring a striking force to the point of employment as nearly complete as possible. A move of fast, leading tanks toward their real objectives, namely, reserves, artillery and rear establishments, and through the enemy's battle position, would certainly find them sadly depleted in making the initial breakthrough. They would have to combat enemy antitank guns and machine-gun batteries in such a movement.

But suppose we precede these leading tanks with what we may call advanced accompanying tanks. These would also be fast tanks whose sole duty would be to effect the breach through the main battle position, combat the enemy antitank guns and machine-gun batteries located in that battle position, and then return for further use as accompanying tanks as we now understand them.

We would then have a unit of fast leading tanks adequate to the task of moving rapidly through the breach created, and proceeding rapidly to their mission of disorganization in the rear areas.

There is no question that by such a procedure the leading tanks can reach vulnerable areas and effect damage which will amply repay losses which must necessarily occur to the tank units. The disruption of enemy's communications, the destruction of an important reserve, or the destroying of his ammunition supplies at the beginning of a large offensive might easily render such an enemy impotent at the time of our decisive effort, and bring forth a speedy decision in favor of our forces.

Through such a breach we assist the movement of our fast leading tanks by the use of smoke screens, and air and artillery preparation. There are two fundamental classes of tank attacks:

- (1) An attack without artillery and air preparation; and
- (2) An attack with a short (one to one and one-half hours) artillery and air preparation.

Consider the latter method, also using a smoke screen. In order to save time and to secure surprise, the artillery and

air preparation should be conducted during the employment of the smoke screen. Destruction of definite areas and points of resistance can be so carried out, in view of the strength of modern artillery. It is only necessary to make all arrangements regarding the distribution and transfer of fire before the smoke has reached the respective targets, and to coordinate the action of the artillery in time and in depth with the scheduled smoke screen. The mission of the artillery and air preparations during such an attack is to disrupt the enemy artillery and destroy his system of antitank defense. The further operation of the artillery and the air forces must be coordinated with those of the tank groups and the placing of the smoke screens.

But why limit our activities to moving such fast leading tanks through a portion of an enemy's defensive system in a stabilized situation or directly toward him in a strategic advance and concentration, if terrain and enemy's dispositions permit us to move around one or both flanks?

There is nothing visionary about the subject of "deep tactics" as referred to by the Russians. In such an action we consider, by a combination of the use of fast tanks, aviation, long-range artillery, and motorized and mechanized units, a simultaneous operation against the whole depth of the hostile combat zone with the mission of simultaneously engaging and annihilating all the enemy's troops, no matter how far away they may be located. The striking power of the principal arms of such tactics—fast tanks and aviation in large numbers—can be made sufficient for the execution of independent missions in the enemy's rear. During the World War attempts were made on the western front to engage hostile defensive zones throughout their entire depth, and the lack of success was due, not to the fault of the tactics, but on account of the capabilities, limitations, and methods of employment of the then existing tanks, aviation, war gasses, and artillery.

With forces of any size directly opposing each other the attacker can only gradually overcome the hostile defensive system, because only the weapons in the vicinity of the main battle position can be completely silenced, and the enemy has time to concentrate his reserves in the endangered locality. In order to overcome this situation, it is necessary to launch

simultaneously a frontal attack and an attack against weapons, reserves, headquarters, etc., located in the rear areas.

A suicide club, you say? So people talked about aviation in its infancy, but today we hear cries from all sides that future wars will be won in the air. Surely a fast tank unit can have more chance of maneuver against an enemy stronger in such weapons than can an inferior air force against an opposing air force that is correspondingly stronger; can have as much chance against a force of its own size; and even more against an inferior enemy than can units of an air force involved on similar missions.

Such a move by fast tanks is no more hazardous than any detached mission, on the ground or in the air, where it requires ingenuity and skill to successfully perform a mission and successfully return. Losses? Yes. But in incurring such losses the fast tank unit has accomplished the destruction of the rear echelon of the enemy, the ammunition located in his ammunition depots, the artillery moving into position or moving up from rear areas, enemy reserves, enemy airdromes, disrupted the enemy communication system, thrown the enemy's entire system into chaos. Any or all of these results justify the losses, and operate to prevent far greater losses of lives and matériel and far greater financial outlay which of necessity would occur in a progressive frontal attack with a continual hammering of infantry and artillery and all other supporting arms to accomplish a grand "breakthrough."

In modern war with the information available to commanders of field forces, definite conclusions as to general courses of hostile action can be made with considerable accuracy. There is little excuse for a commander to remain inactive and await developments. When a course of action, offensive or defensive, has been accepted, decisive action in accordance therewith must follow. We immediately think of dispatching into the air our air forces, for an initial destructive mission or missions, or to gain information.

We have at hand in the fast tank a means of securing commensurate results of a more definite character, both as to destruction and to information. Against an offensive on our part, an enemy is rushing his forces up to a specified defensive location and organizing in depth, with his main effort directed principally to the front or the immediate flanks

of such a front. Ordnance of all types in rear areas is generally incapable of serious action against tanks. They are heavy calibers, slow of movement, and unsuited for fire against point targets, especially when those targets are moving. The only real protection of rear areas at the present time is antiaircraft artillery, which is designed primarily for fire against targets which insure an elevation of the gun through an angle considerably above the horizontal.

In the initial phases of combat between first class nations such a condition will exist until the need of antitank guns in rear areas is demonstrated, and until such guns are available in sufficient quantities. Meanwhile, the nation with the foresight to insure that it has on the field of battle fast tanks in sufficient numbers to afford a hard-striking force, will secure results that will make it too late for its opponent to bring into action those pieces of ordnance in rear areas so vital to its protection.

Several interesting examples from the British exercises of 1932 bring out some salient points in the utilization of fast tanks.

To show the celerity of a fast tank force, one battalion of the Royal Tank Brigade was suddenly called upon to interrupt the march of a reinforcing infantry brigade, so as to prevent its tilting the scale of battle. When the call came the tanks were under cover, five miles distant from the enemy column. The latter had a lesser distance to go before it could arrive on the field of battle. But it did not arrive. In a short space of time the tank battalion was on the move, already preceded by a patrol of light fast tanks reconnoitering for the head of the enemy column. In about twenty minutes the head of the column was fired upon by the leading tank company. In another fifteen minutes the column had been completely dealt with, when a report was received that hostile tanks were hastening to the rescue. Within ten minutes the whole tank battalion reformed, and was ready to tackle the new opponent.

In another exercise the entire tank brigade was used as an army's strategic arm of maneuver. It circled round the flank of a hostile army with the aim of turning that army's retreat into a rout. At daylight the brigade was in a concealed location eleven miles distant from the road on which the nearest columns were retreating. The distance would have been

nearly a day's march for an ordinary force. After the issuance of orders, a light battalion moved off, followed by three mixed battalions. Within twenty-five minutes the light battalion had advanced over seven miles. Upon making contact with the enemy's marching column, a stream of messages reached the brigade tank commander in rear, giving the location, not only of the head and tail of the column, but of its battery position and antitank weapons. Orders were given for two battalions to attack the forepart and hindpart respectively of the column, one light company having been sent off ten minutes earlier to block the head. One-half hour later a third battalion, followed by two light tank companies, was launched between the two battalions, and completed the enemy's demoralization.

In still another maneuver the entire tank brigade was again used. In this exercise the general idea was that the small army to which the tank brigade was ultimately attached had been compelled to retreat in order to gain time until the mobilization of their forces was complete. The stronger army had pressed on, and was menacing the capitol of the small army. Mobilization of some forces having been completed, and the tank brigade having been made available, the advance of the enemy was brought to a halt and the counteroffensive was assumed. To coincide with the offensive, the tank brigade executed a wide enveloping maneuver around the flank of the hostile army, against its communications, and covered nearly fifty miles. By afternoon it was astride the enemy's rear, cutting communications and lines of retreat.

This exercise was cited as an excellent example of a move that would have been decisive in 1914 in turning the flank of the German right wing, the maneuver which, in the exercise, was begun and completed in a single day.

It is worthy of note here that the tank brigade referred to, although not complete with the latest machines, embodied a fire-power, in guns and machine guns, greater than a division of nearly 20,000 men. The fire-power is, for practical effect, multiplied by armor and speed. Yet it could be assembled in a time incomparably small as compared with an infantry division, and this tremendous fire-power was wielded and the brigade maneuvered by hardly more than six hundred (600) men.

EXPLOITING TANKS

Again quoting from the *Infantry Field Manual*: "For exploitation fast tanks will be especially suitable. When tanks are used for exploitation they should, if practicable, attack the hostile general reserves. By so doing they may prevent a hostile counterattack, and bring about decisive results."

In the World War experience proved that the attacker, having demoralized the enemy, and needing little to change defeat into disaster, was often thwarted from reaping the final fruits of victory because he had passed beyond the effective support of the artillery and was unable to continue the pressure he had been exerting. The old tanks were too slow in reaching the enemy to be effective.

But the fast tanks, held in reserve by the commander until a success is indicated, will be able to exploit that success, and so gather the full fruits of victory. A regiment of fast tanks could be sent to seize essential terrain features, to disrupt artillery which still interferes with the advance, to interfere with the communications of the defender, to disorganize or scatter organized reserves, to prevent counterattacks, or prevent organization of defense on a new position farther to the rear. Such tanks should not be piece-mealed out, but should be used as an entire force, giving to them a mission, which, if fulfilled, would cause the greatest embarrassment to the enemy. Here the supreme commander can more readily determine what part of the front to give to the harassing fire of long range artillery and what part to exploiting tanks.

Movements and formations for exploiting tanks will conform generally to those visualized for the leading tanks except that the tank commander of the exploiting tanks may be allowed more freedom of action. Such exploiting tanks, used at the proper time, in the direction and against the objective which offers the greatest opportunity for turning a local success into a real victory, will be the most powerful ground weapon available to the army or corps or division commander.

DEFENSE

Like the airplane, the tank is an offensive weapon, so that whatever the plan of the higher commander, the action of the tanks must be offensive. In the defense, the commander

uses all means at his disposal to disorganize and perhaps stop the enemy's attack before it reaches his defensive position. Here we can see an excellent use for our fast tanks.

We can give them a mission of disrupting the hostile attack by a blow against assaulting troops. If this attacking force were struck in flank by an attack of fast tanks just as they were about to move forward to the attack, the results would be particularly effective.

An attack against the enemy's formed reserves by a fast moving tank unit could well be the means of attaining success in any defensive position by preventing the enemy from using such reserves. Fast tanks will of course be used in counter-attacks launched to restore portions of the position which have been overrun. The mobility of the fast tank will enable it to take part on more of these counterattacks on different portions of the defensive position, to accomplish its mission more quickly, and to avoid casualties.

Fast tanks will be invaluable in the counteroffensive. Here we see opportunities to attack the enemy in force from a flank or from a covered approach, and effect a maximum of surprise with a strong crushing blow.

SPECIAL OPERATIONS

Speed, dependability, and mobility have made the fast tank a weapon of great value in the special operations of warfare. They could be used by advance guards to quickly overcome slight resistance, and permit the column to march without interruption.

Due to their ability to travel considerable distances under their own power, they can move along with the advance guard whenever occasion demands. If not accompanying the advance guard, they could move rapidly forward from the main body and assist an advance guard in offensive action.

In a meeting engagement, fast tanks operating against one or both flanks of an enemy, even swinging completely around his rear, would greatly delay his forward movement, and probably bring it to a standstill. In a withdrawal, fast tanks could disengage closely pressed units by a series of counterattacks from flank positions. During the retirement they can harass and delay the heads of the pursuing columns. In the hands of an energetic outpost commander a unit of fast tanks would constitute a highly mobile and effective reserve.

We cannot leave this question of special operations without mentioning tank vs. tank. It is inevitable that there will be a meeting of such forces in a future war between first class nations. Success will depend upon rapidity of maneuver, armament, armor, and fire-power of tanks. Proper utilization of terrain, surprise, accuracy of fire, and training of personnel will be the important factors. If confronted by tanks of superior speed and power, combat would probably be avoided unless circumstances are particularly favorable. However, it must be remembered that bold leadership, skilful maneuver, and high morale may at times bring success to the weaker unit.

CONCLUSIONS

Fast tanks embody the most advanced thought of highly mobile ground weapons available to a first class nation.

Fast tanks will secure the following results:

- (1) Effect increased demoralization among hostile troops, diminishing their opportunity for escape, and increase their prospect of being run over.
- (2) Make hostile fire upon the tanks much less accurate.
- (3) Afford hostile gunners time for but few shots while the tanks are closing upon them.
- (4) Afford greater freedom as to the selection of the point to be assaulted by the tanks.
- (5) Reach an important point earlier than the enemy, thus saving some important objective from destruction, or otherwise securing an advantage.
- (6) Deprive the enemy of time needed for the organization of his defense in accordance with his normal plans.
- (7) Increase the possibility of surprise to an important degree.
- (8) Simplify the movements of tanks from a remote point to a suitable area from which to launch an attack.

Commanders and staffs must visualize early operations with only a very few mechanized units on hand, and at the same time evolve tactics for the employment of such fast tanks as soon as they have become available in quantity.

In any future wars the present slow tank will be entirely inadequate to the tasks required, and a mechanization and

motorization program for our Army should be coordinated with mobilization plans.

The inevitable trend in modern warfare is toward greater speed of strategic maneuver; increased firepower on the battle-field through the employment of weapons of much greater efficiency, with a resultant wider dispersion in tactical formations; and more power in the attack through utilization of combat vehicles invulnerable to small arms fire and capable of cross-country travel.

With fast tanks a maneuver of a range that would have been decisive at a critical time in the World War and that would have taken several days with the means available, can now be begun and completed in a single day. Modern formations cannot be used effectively until our higher commanders and commanders of lower units have developed what one may call "tank-time sense." Tank time is the correct time for figuring a move to a decisive spot. It gains time so quickly that it can gain a decision, and it is the only maneuver that has such promise in modern war.

The conditions of war are still such that fire which is directly applied at close range—as the fire of an armored force can be—is far more potent than indirect fire in battlefield reality.

Increased mobility of tanks will give to the more mobile Army the advantage of the initiative, including frequently the selection of the terrain of decisive battle.

The tactical and strategical maneuvers suited to the employment of increased mobility should receive special study.

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MECHANIZED ELEMENTS OF THE CAVALRY DIVISION

By Major Robert W. Grow, Cavalry

CAVALRY MECHANIZATION

Two forms of cavalry organization exist today in our army. The first is the traditional horse cavalry. The second is the newly organized mechanized cavalry. The latter now consists of a regiment, soon to be a brigade, completely mechanized, organized with a view to its employment either independently or in cooperation with horse cavalry on those cavalry missions for which its characteristics particularly adapt it. The present discussion is not concerned with this type of cavalry but with horse cavalry, which, in its present organization, has acquired certain mechanized elements without the alteration of its fundamental organization or the replacement of the mounted trooper by machines.

The augmentation, by mechanized means, of the cavalry division is designed to increase the effectiveness of the mounted trooper under modern conditions. It should not be confused with a plan to replace the man on a horse by a man in a machine, as exemplified in the mechanized cavalry brigade.

A new divisional organization of cavalry may be expected within the next two years. The exact form of this organization cannot be predicted now. However, it can be safely stated that it will include the mechanized elements discussed herein, probably in the proportions indicated in Chart No. 1. The purposes for which the mechanized elements will be added are in general two. First, to increase the sphere of action of the division, and second, to increase the combat power of the division. More specifically these purposes may be expressed as follows:

(1) Without mechanized elements, the sphere of action of the division is limited to the mobility of its horses. The use of horses alone for the time-consuming duties of reconnaissance and command, which are essential to a sound formulation and execution of a tactical plan, fails to take advantage of an equal degree of mobility possessed by the major combat elements of the division. It may result either in inactivity by the main body while awaiting the results of reconnaissance and thus failing to

take advantage of favorable tactical opportunities, or it may result in excessive marching and counter-marching by the main body.

(2) The ability of cavalry to overcome an enemy disposed for defense with modern equipment depends upon cavalry's power to crush hostile machine-gun resistance. To this end, in addition to a full use of their traditional power of maneuver, cavalry units require support by artillery and combat cars.

For purposes of this discussion the organization of the cavalry division is given as it is taught at the Command and General Staff School during the present school year. For an abridged organization chart showing all mechanized elements, see Chart No. 1.

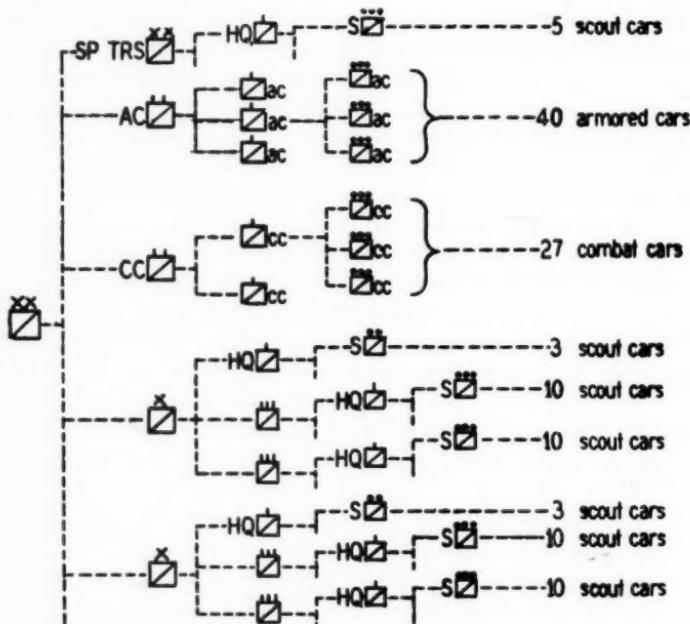


CHART NO. 1

As may be deduced from the organizational chart, the armored-car and combat-car squadrons are division agencies, while the scout-car platoons are agencies of the several head-

quarters to whom they pertain. It is, then, a function of the division commander to direct the operation of the armored-car and combat-car squadrons in the same manner as he directs his cavalry brigades, artillery, and engineers. On the other hand the scout-car platoons are simply elements of subordinate units, each controlled by its immediate commander. Of prime importance to note is the fact that the bulk of the mechanized augmentation of the division consists of units designed primarily for reconnaissance. These are the armored cars and scout cars. The combat power of the division is vested primarily in its horse elements. To meet modern conditions these are reinforced by the addition of the combat cars.

ARMORED-CAR OPERATIONS

Organization

The armored-car squadron consists of a headquarters and three troops each of which includes three platoons of four armored cars and one motorcycle. The missions assigned the armored-car squadron are usually such that they are carried out by platoons each operating independently, but their actions coordinated by troop and squadron commanders. The platoon is the basic fighting unit. Two of its armored cars are equipped with radio, one set for the platoon leader and the other a spare set. The platoon is divided into two sections.

Employment

The employment of armored-car units can be illustrated by considering the action of one platoon in a situation shown in Diagram No. 1.

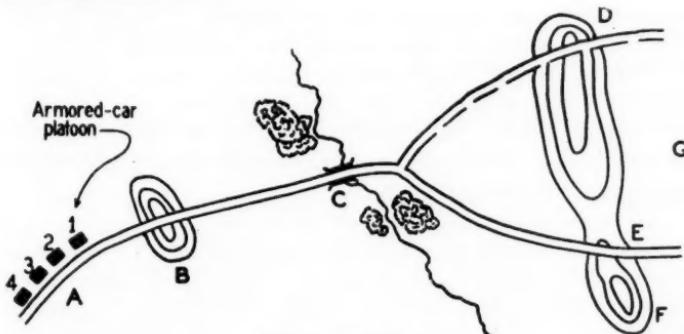


DIAGRAM NO. 1

The mission is to reconnoiter in the direction G. The road A-E is a good road. The road D is a poor road.

Armored car No. 2 is the platoon command car. The motorcycle usually follows No. 2 car.

While at A, the cars march at approximately the following distances:

No. 1 to No. 2—600 yards

No. 2 to No. 3—400 yards

No. 3 to No. 4—200 yards.

Upon reaching hill B, No. 1 car increases speed to hill, observes, halting if necessary, continues. No. 2 car (platoon leader) does not close on No. 1 car unless signalled to do so. Second section maintains distances.

Upon reaching C and E, No. 1 car rapidly gains E and observes. No. 2 car signals motorcycle to take road to D to make rapid observation. Then No. 2 car may leave road to F for better observation. Second section maintains distance.

Assuming the platoon leader from B sees No. 1 car ambushed at a road block concealed at C, the platoon leader may take the following action:

No. 2 car supports No. 1 car by fire from B, No. 1 car getting back to B if possible. Second section by mounted or dismounted maneuver, probably by left flank, drives out hostile force. First section continues fire support. If stream is fordable, second section may make wide envelopment. If the enemy proves to be too strong, the platoon leader reassembles his platoon, selects another route of advance, notifies his superior, and continues on his mission.

The mission is to delay hostile force advancing from G.

Assuming the platoon reaches E before enemy is encountered, it may make the following dispositions:

One section on hill F and one section on hill D open fire at long range, cars being held on reverse slope prepared for prompt withdrawal from action.

The platoon may withdraw as follows:

Second section moves to hill B, preparing an obstacle at C which first section can later install. When enemy approaches to close range, first section rapidly withdraws, completes obstacle at C, then continues via a flank to B covered by second section.

The platoon leader communicates with higher headquarters:

- By radio
- By motorcycle
- By impressed motor vehicle, and
- By armored car.

The platoon leader communicates with his other armored cars:

- By visual signal
- By motorcycle, and
- By voice.

The following weapons are available for dismounted use:

One submachine gun in each car and a pistol for each man. In addition, all machine guns may be dismounted for passive defense.

COMBAT-CAR OPERATIONS

Organization

The combat-car squadron consists of a headquarters and two troops of three platoons each. Each platoon consists of four combat cars and a self-propelled gun.

Employment

(1) The combat-car squadron is usually employed as a unit.

(2) Combat-car attack is designed to break through hostile resistance and disorganize the enemy position, reserves, and command system thus enabling the horse units to secure their objective more readily.

(3) Formation in depth is usual in order to provide weight to the attack and to provide flexibility in attack directions.

(4) Diagrams Nos. 2 to 4 illustrate combat-car formations:

SCOUT-CAR OPERATIONS

Scout-car platoons and sections of division and brigade headquarters troops.

The principal functions of these units are:

(a) To provide transportation and security for higher commanders and their principal staff officers in personal reconnaissance and inspection.

- (b) To provide a means for liaison.
- (c) To augment communications.

These units unusually operate from the command post of the parent unit. They frequently accompany the commander. They may be employed by single cars in command missions.

Scout-car platoons of regiments:

(1) One section (usually two scout cars) is generally employed for command purposes as indicated for the division and brigade.

(2) The primary use of the platoon, however, is for reconnaissance. It is also employed for security and combat missions which are appropriate to the characteristics of the vehicles.

(3) The organization of the platoon is flexible so that the sections of two cars, three cars, or more may be detached for each mission, the strength of the section being determined by the nature of the mission.

(4) The execution of missions is accomplished in the manner described above for armored-car operations.

(5) Except for the motorcycle the scout-car platoon employs the same means of communication as the armored-car platoon, each two-car section having radio.

As can be deduced from the discussion above, the primary distinction between armored-car and scout-car units is that the former are agencies of the higher commanders. Present vehicle designs provide for somewhat greater fighting power in armored cars. It is very possible that this distinction will be eliminated in the future if experience indicates the advisability of providing greater protection and a turret arrangement for scout cars. On the other hand it is possible that the present armor and armament of scout cars may prove sufficient for armored cars, although this is less likely.

ARMORED-CAR SQUADRON IN THE DIVISION

The armored-car squadron is designed primarily to extend the scope of employment of the division. It does this through distant reconnaissance beyond the capabilities of horse units thereby enabling the division to take full advantage of its own mobility. Again it does this through security measures and delaying action, thereby enabling the division to gain tactical advantages.

When distant reconnaissance is indicated, all or part of the armored-car squadron is usually employed as an independent reconnaissance detachment. This does not preclude the use of horse reconnaissance detachments. These may also be employed possibly in separate zones and generally at lesser distances. It is usually inadvisable to attach armored-car elements to horse reconnaissance detachments since this is inclined to localize the armored-car effort and it is unnecessary since the horse detachments have their own scout cars. The type of information expected from armored-car reconnaissance is information of terrain and large hostile forces; in general, the type of information desired by higher commanders.

In view of the missions usually given armored-car units, units smaller than a platoon are seldom given an independent mission. Armored-car operations, especially in reconnaissance, necessitate relatively high speed on roads. An alert enemy may be expected to counter such operations by road blocks and ambuscades which when skillfully employed usually result in making a casualty of at least the leading car of any formation. The reduction of the defenses of a road block or the extrication of the leading car can seldom be accomplished by a unit smaller than a platoon. Therefore the employment of a section of two cars cannot be expected to accomplish an important mission and is considered uneconomical.

The division commander controls the operation of his armored-car units through the armored-car squadron commander. The latter seldom accompanies any of his troops on detached missions but rather, with such reserve as he may retain, keeps in close touch with the higher commander and at the same time controls the operations of his subordinate units. If the bulk of the squadron be employed on one mission, such as, for example, delaying action, any detachment of a small armored-car unit may operate directly under the division commander, or an appropriate subordinate commander, while the armored-car squadron commander retains active command of the bulk of his squadron.

The air service communicates directly with the armored-car unit. It guides the armored-car unit in general and assists it by liaison with other friendly forces. The armored-car unit may frequently cause the enemy to disclose himself,

thereby giving the air observer a better opportunity to secure information.

The discussion so far has visualized armored-car operations beyond the scope of horse units. Let us now consider the situation when opposing cavalry forces are in contact. The armored-car squadron becomes essentially a reconnaissance and security reserve. We may expect all or part of it to be employed on special missions, frequently in units of a troop or larger, such as:

- (1) A special distant reconnaissance mission to determine quickly some hostile movement or disposition well to the flank or rear, to locate reported hostile reinforcements, etc.
- (2) A security mission to delay or harass hostile reserves or reinforcements, to protect a flank, etc.
- (3) To reinforce a horse unit in delaying action, on reconnaissance or counterreconnaissance, in defense of a key position, etc.
- (4) To maintain a constant surveillance of the flanks and particularly the rear of the immediate opposing force.

Missions to armored-car units should usually admit of a troop in squadron reserve, and a platoon in each troop reserve. In addition to the ever present necessity for mechanical maintenance, the hazardous nature of armored-car employment, tactically speaking, is such as to demand a large reserve in order to assure the continuity of missions.

COMBAT-CAR SQUADRON IN THE DIVISION

The combat-car squadron is potentially a powerful reserve which adds materially to the combat strength of the division, both in the attack and in the defense. It is seldom subdivided prior to the time of its employment although situations will arise in which one troop or less may be given an independent mission or attached to a cavalry brigade or regiment. The primary function of the combat-car squadron is to assist the horse elements in combat. As far as vehicle capabilities are concerned, there is no reason why combat-car units should not be sent on independent missions provided the execution of these missions does not involve an attack of a defended position. In other words, combat-car units are capable of performing missions suitable for armored-car or scout-car

units. However, combat cars are specifically designed for offensive combat and to use them for other purposes is uneconomical. In the execution of an attack combat cars should be provided fire support and the support of ground holding units. On the other hand, armored cars and scout cars are not designed for offensive combat and cannot satisfactorily replace combat cars. To summarize: Each type of vehicle is best suited for specific missions and should be so employed.

If the division be on a reconnaissance mission, the combat-car squadron should be in division reserve.

If the division have a counter-reconnaissance mission, the combat-car squadron in division reserve is particularly valuable to quickly reinforce any point in the counterreconnaissance screen.

In the attack and defense by the division the combat-car squadron may be employed as indicated on Diagrams Nos. 5 to 11.

If the division have a delaying mission, the combat-car squadron may be employed to make harassing attacks either by fire alone or by fire and shock action, or it may be held as a reserve to the delaying force with a view to its employment in counterattack.

SPECIAL MECHANIZED OPERATIONS

When time does not admit the horse elements of the division accomplishing a distant mission it may be possible to employ the mechanized elements independently until such time as the horse elements can arrive. The following principles must then be observed:

(1) Armored-car and combat-car units in cooperation may be employed independently to delay and harass a hostile force. If the hostile force be comparatively weak, they may attack with a view to his complete defeat. In general, however, mechanized elements should never be committed to an attack unless they are supported by ground holding elements capable of supporting the attack by fire; of securing the ground gained, and of covering the assembly of the mechanized elements.

(2) A dismounted force of horse cavalry, transported in trucks, attached to the above mentioned mechanized unit may frequently be employed to secure key terrain.

SUMMARY

The mechanized elements of a cavalry division increase its sphere of action and combat power.

The armored-car squadron is a divisional agency designed primarily for distant reconnaissance but also possessing great mobile fire-power.

The combat-car squadron is a divisional agency designed primarily to assist the horse units in combat. It possesses great mobility, fire-power, and shock-power.

Scout-car units are agencies of subordinate units, designed primarily for reconnaissance but also possessing great value for missions demanding mobile fire-power and for command missions.



← 300-400 yds →

■ Plat



■ SP gun

COMBAT-CAR PLATOON IN ATTACK
Diagram No. 2

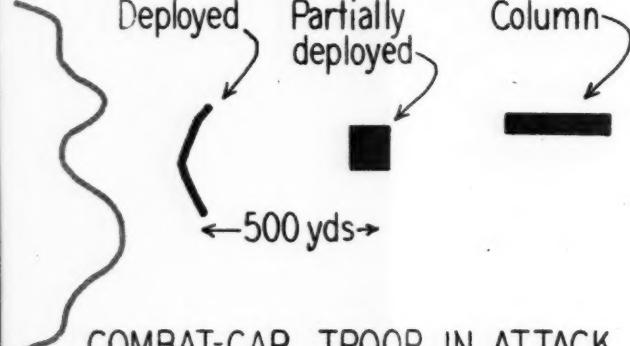
Column of platoons

Deployed

Partially deployed

Column

← 500 yds →



COMBAT-CAR TROOP IN ATTACK
Diagram No. 3

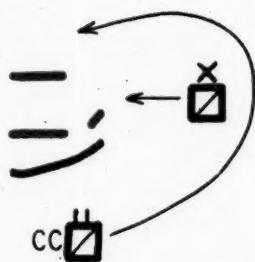


Troops
echeloned
(May be abreast
or in column)

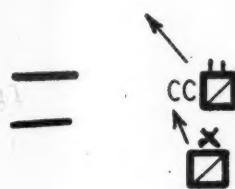


COMBAT-CAR SQUADRON IN ATTACK
Diagram No. 4

COMBAT-CAR SQUADRON IN ATTACK



Extending an envelopment
Diagram No. 5



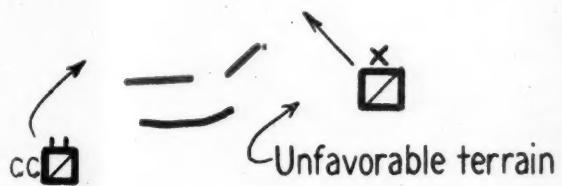
Attached to enveloping force
May lead mounted envelopment
Diagram No. 6



In reserve

Obscure
situation
Mobile enemy

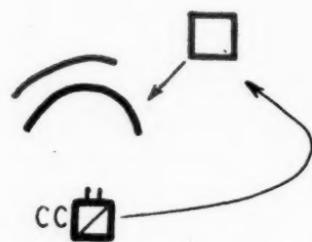
Diagram No. 7



Assist holding attack
Block hostile withdrawal
Pursuit

Diagram No. 8

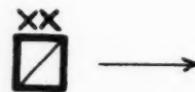
COMBAT-CAR SQUADRON



Counterattack

Diagram No. 9

NUCLEUS OF FORCE



disintg.
in true

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QUADRON IN DEFENSE AND DELAY

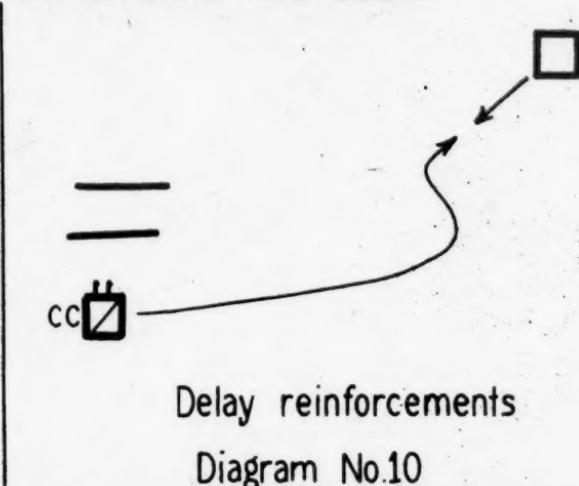


Diagram No.10

FORCE TO SEIZE KEY POSITION

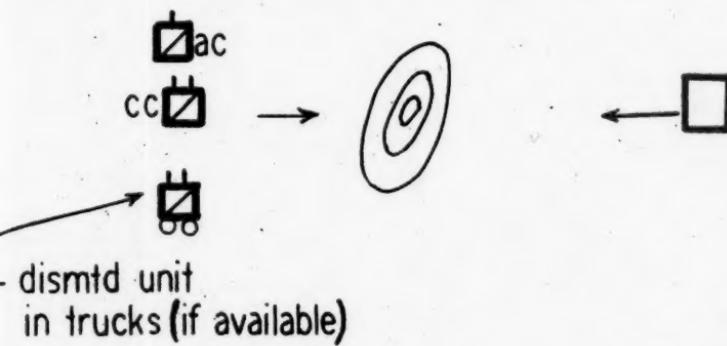


Diagram No.11

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Section 2

ABSTRACTS OF FOREIGN-LANGUAGE ARTICLES

This section contains abstracts of important articles from foreign military periodicals; the remaining articles for each magazine are listed in Section 4.

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COOPERATION BETWEEN TANKS AND AIRPLANES

By Major F. During, Infantry

The technical as well as tactical development of the tank since its first appearance on a large scale during the tank battle of Cambrai in November, 1917, has made this weapon gain increased importance during the course of time in the case of armies unrestricted as to armament. The great problem of combining the firing strength, the speed, and the protection against enemy fire is constantly occupying the minds of the military experts in every army.

From year to year in many armies full motorization is being more strongly pushed into the foreground and in some respects tank weapons are considered as being overestimated. Nevertheless, certain basic factors with regard to the tank weapon have remained unchanged since the day of its first appearance in greater numbers. They had to remain unchanged as long as it was believed that the modern methods of waging war would call for a combined effort of the various weapons on hand.

If we read the first tactical service regulations of the English Army regarding tanks, dating back to 1917, we will surely have to consider that much of what we find and read there, has been superseded. However, some things which have

Abstracted from *Deutsche Luftwacht*, Luftwehr edition, 1 July, 1934.
"Zusammenwirkung zwischen Kampfwagen und Flieger." By F.W.
v.Oertzen

been mentioned there, will retain their value in connection with the newest developments. For example:

"In the case of tanks, as with all other weapons, satisfactory results can only be achieved by the combined efforts of all arms. Even though the use of tanks as auxiliary means in attack operations is still for the greater part in an experimental stage, all leaders and subordinates should know definitely what tanks can do and what they cannot do. Furthermore, they must know the basic ideas of their application as far as these could be established at the time. This is all the more necessary since in view of the constantly increasing number of the English tanks, it will doubtlessly happen that without any previous experience or training troops will have to cooperate with tanks."

The fact that the tank can only be fully utilized in connection with other weapons is today as true as before. Due to a change in technical conditions, however, it must be expected that the manner of cooperation between tanks and other weapons will have to undergo a change and this has already been the case.

Until the end of the war and during the first years after the war it had to be borne in mind, in securing cooperation between tanks and other weapons, that the tank, as a heavy auxiliary infantry weapon, normally had a speed which did not very much exceed that of the attacking infantry (average speed of the old tanks about 5 miles per hour).

The improvement in antitank defense has brought about the necessity of continually increasing the speed of the tank. Passing over the experimental types and the stories spread in regard to the results of such experiments, the average speed of a medium-sized tank may be set at 20 to 22 miles per hour. There is no doubt but that this speed has been aimed at mainly in order to quickly and safely bring the attacking tank into the enemy lines. It is natural, however, that the connection between the attacking tank waves and the infantry following them, is rendered difficult through the great difference in the speed of the forward movement. Not in the least is this the reason that experiments have been made in England and France with one-man tanks with the object of safely and quickly carrying ahead certain parts of the infantry behind the advancing tank waves in order to safeguard in this man-

ner, the ground gained, but these experiments have not as yet brought about the desired results.

For the time being the fact remains that in view of its far greater speed, the tank remains a considerable distance ahead of the infantry following it, and that it will often be forced at the start to protect the ground gained without any assistance.

This difficulty of securing a tactical combination between the tank and the infantry naturally suggests trying a combination with other weapons in order not to isolate the tank too much from other arms and thereby decreasing its value.

Even in cases where it is possible that large numbers of tanks may be used as the main combat arm, the necessity of constant cooperation with other weapons becomes evident. This is mainly due to the modern tactics of the tank itself.

It is not necessary here to mention the numerous cases in which the use of the tank appears inadvisable as, for instance, because of conditions of the ground. It is only a question of ascertaining how tanks can be used today by armies as an attacking weapon and what part the airplane is intended to play under various conditions of such employment.

When using large tank masses, we must keep two main objects in mind. While originally the English (the most radical representatives of this idea being Fuller and Liddell-Hart) considered the tank the main weapon of the future motorized open war and even a guarantee against the return of stationary war. France has considered the tank more of a pioneer weapon for simultaneous frontal attacks. France has also of late shared the impression that during the next war, tanks will have a more independent and flexible task. The first consideration here is the employment of large tank masses either in the very first stage of the combat itself, i.e., before the entire mobilization of the mass of armies has been completed and the fronts have thereby been "frozen" again, and the second is to use the tank to create a thoroughfare through the enemy front, so to speak, as a reinforcement of the driving wing of the penetrating attack.

In every case a mass employment of tanks is also considered for the reason that in view of the improved antitank weapons the number of tanks put out of commission will be considerable. When one considers that in the tank battle of Cambrai,

in which the surprise element had a strong effect on the Germans as this weapon was entirely unknown, 107 of the 436 English tanks employed were put out of commission by the Germans, it is evident that in view of the improvement of the antitank weapons, all armies of the world will have to reckon with a higher percentage of losses than at that time.

The speed of the tank which has been increased at least fourfold since its first stages, is at least equalized with respect to the percentage of losses through the improvement of the aiming device and through the heavy antitank machine guns which have an extraordinary fire effect.

In view of all these circumstances it has become necessary, whenever possible, to plan and carry out tank attacks under the protection of artificial fog. In trench warfare, where the terrain to be attacked is known in every detail and every peculiarity of the ground can be ascertained long before the start by means of airplane reconnaissance, the disadvantage the tanks may experience through blind maneuvering, will not be so serious. However, the situation is entirely different when it is intended to use tanks in a war of movement, where it will not be possible to become acquainted with the full details of the terrain. But in this case too, the tanks—whose field of view is not a very large one—have to be protected by artificial fog. They are therefore forced to drive blindly.

In connection with the use of large tank masses, the problem of command in battle gains dominant importance. The early difficulties such as the transmission of messages from one moving tank to another may now be considered as having been fully overcome. As radio and the construction of equipment for wireless telephony improved, the difficulties were overcome, which again and again had shown their disturbing effect in the mass use of tanks towards the end of the war.

In the case of mass employment of tanks, operating under cover of artificial fog, the driving remains of decisive importance. The leader tanks too, even under the best conditions when looking through a slit can only overlook a very small part of the terrain ahead. What is happening a few hundred yards on the side is already beyond the knowledge of the leader tank, even when artificial fogging is not used. As previously stated, however, artificial fogging will be the rule.

Foreign countries of late have attempted to overcome this difficulty by placing the command of attacking tank units in the air. One or several command planes (protected against enemy air attacks by a sufficient number of pursuit planes) can, even from a considerable height, when favored by the weather, lead several attacking tank waves covered by fog, over comparatively unknown terrain. According to the reports from Russia, experiments of this kind have already been made on a large scale. It was found from them, that it is advisable to subdivide the task of the command planes. One or two planes can take over the duty of watching the terrain for all attacking tank units; their instructions and directions go direct to all tanks and serve as a general terrain orientation for all waves. This is of particular importance when the terrain is hard to watch from the tank, due to its being covered by woods or small hills. In such cases, it is of decisive importance for each tank leader to know what impediments of the terrain may be expected during the course of the attack.

Moreover, the actual combat command is also hard to execute from the tank in the case of mass employment and blind driving. It is therefore advisable to place this in the air too. It is therefore the duty of the tactical command planes to keep the leader tanks of the various units informed during the course of the attack and to convey the necessary orders to them. The execution of the orders will then be passed on by the leader tanks to the individual tanks. This is an almost automatic transfer of commands to the moving tanks and prevents danger of individual tanks driving blindly over the terrain and not being on the spot at the decisive moment, when the leader wants them.

[In this connection experiments of interest have been made in England, in which autogiros have been used instead of airplanes for combat command in connection with tank attacks. The advantage in using autogiros lies in the fact that these planes are able to closely adjust their forward speed to that of the tanks so that the combat leader can take a certain regular observing post and thus much better watch and direct the development of the combat than would be possible in constantly encircling the territory which, because of their speed, is necessary when employing normal planes.]

By constantly and intensively observing the combat from the command plane it will also be possible in many cases to spot enemy antitank nests and to prepare the necessary countermeasures. These means may consist in calling for artillery

assistance or for special groups of tanks held in readiness for such work. The latter is more advisable, because in view of the speed of modern tanks, the time available for laying effective artillery fire on a resisting nest spotted by a plane, does not suffice.

It can be seen that the necessity for well-trained cooperation between the tank and the airplane is evident. It is not only the opinion of the English that in the future tanks will be employed to combat tanks. The tactics of such a combat of tanks against tanks should be considered as similar to those at sea. In case of such combats it will mainly be a question of creating a situation, during which the fire effect of as many of our own tanks as possible against enemy tanks will become effective the very moment when the fire effect of the enemy tanks cannot be fully utilized. Therefore, an attempt must be made to attack the flank of a preceding enemy tank wave by one of our own tank waves, because in such a situation the fire-power of only a limited number of the tanks can become effective.

The conditions for command of such a combat of tanks against tanks are, however, entirely different than those at sea. Lack of visibility and the presence of artificial fog make it almost impossible to adequately command such a combat from the ground. If this were done, it would often result in collisions between the various tank units. It is evident that in such situations chance and aimlessness would dominate. The solution would be to have the command for such operations come from the air.

The attempts which have so far been made in this direction have, as far as is known, not led to any definite results. In Russia, some very interesting attempts have been made along these lines, particularly in the Army of the Far East under the command of General Bluecher, because of the vast distance in the Far East field of war, an independent and manyfold use of tanks of all kinds is being anticipated. Here the experiments of practical cooperation between tanks and airplanes have gone comparatively the farthest. The Russian Far East Army is even considering a possible direct assistance from the air, to the tanks. In practice this would mean the employment of day bombers, which would attempt attacking enemy mass tank assemblies in their initial stages by dropping

bombs on them. It is also contemplated to use armored planes to hold down enemy nests by fire from the air, until the attacking tanks have come near enough to cover the enemy nests themselves upon orders from the command plane.

This latter theory, however, seems questionable from a practical standpoint. It would not only take for granted an absolute aerial superiority, but according to our opinion it does not give sufficient consideration to the improvement which has been made in the defense against comparatively low-flying enemy planes. Nevertheless, the theories as such are not uninteresting, as they doubtlessly open certain perspectives for the future.

The entire question of tactical cooperation between tank and airplane gains in importance in the same measure as the speed of tanks is being further increased from time to time. If it is assumed that in the not too distant future a tank attack will be carried out with an average speed of about 30 to 35 miles per hour, it is evident that the tactical command of tank waves, possibly numbering one hundred or more tanks, will no longer be possible from the ground. The observation of the comparatively large territory to be covered in a short time, will constantly become less possible for the individual tank driver. His functions must more and more become similar to those of an operator of a fighting turret on a battleship. That means that to a certain extent the tank driver will be void of all initiative, and in regard to driving direction and firing, will work almost exclusively by means of the wireless orders which he receives from the plane.

Nevertheless, the fact that each tank, so to speak, is a separate being with its separate possibilities of mobility, will repeatedly place the tank driver in the position of having to make his own decisions, which can only be done on the spur of the moment.

A large number of interesting and important problems arise for the airplane weapon in regard to its cooperation with the tank weapon, particularly in connection with training. It is not only a question of fully training the commanders of large or medium-sized tank units as air observers, but there is, as far as the air weapon is concerned, an almost unknown territory for the closest cooperation with the tank weapon on the ground.

On the other hand, the aviator must be fully familiar with the technique and tactics of the tank weapon. It will become necessary to familiarize quite a number of aviators with the technical and tactical operation of this weapon by detailing them to the tank units for a considerable space of time.

Cooperation between the artillery and the airplane offer a certain basis for the practical treatment of the problem outlined here. In case of cooperation between tank and airplane, the basic experiments along the lines of artillery flying may doubtlessly be resorted to. It must always be borne in mind in this connection that considerable development in this field lies to the fore. This has already been fully realized in foreign countries, and systematic tank exercises are being started with command from the air, such exercises being added to the training program of tank formations. Tank drivers are trained in blind driving and simultaneously in keeping distances and speed even in case of unfavorable formations of the ground. In this way, conditions for undisturbed tank driving in large units are created, and at the same time—at least in some respects—the requirements which will arise in actual warfare are more nearly approached.

In such training particular importance is placed upon the requirement that the aviator, who has been designated to cooperate with the tank, personally knows all the numerous individual difficulties which constantly confront the tank driver during blind driving in large formations and over unknown territories. The aviator must know from his own experience that he has to lead a whole company of blind men. He must never give his instructions in such a manner that their execution necessitates seeing what only he himself is able to see. This means a considerable mental flexibility on the part of the aviator, who is naturally accustomed to consider the eye an important part of his equipment. This equipment, which is indispensable to him, is in most cases almost entirely lacking to the moving tanks on the ground. The aviator must therefore consider himself as an eye of the blind tank, which has been elevated to the air.

We have shown the many difficulties which arise in practice in developing cooperation between tank and airplane, but such difficulties, however, have always existed in the tac-

ties of combined arms. Only after these were overcome did the various weapons become one unit, which, as a war machine could fulfill the requirements of a modern army.

**TWENTY YEARS AGO. WAR EXPERIENCES
IN THE EMPLOYMENT OF MODERN CAVALRY**

By Captain G.B. Guenther, Cavalry

Experiences are acquired in war through actual practice. It is very easy to pursue erroneous courses during peacetime theoretical training. Not only is the hostile fire effect lacking but we do not give it the proper consideration in peace, and in addition there are numerous conditions which cannot be represented. According to Bernhardi these are: "the elements of adversity, chance and the influences on morale." In many cases at the beginning of the World War critical periods of uncertainty occurred within the various arms, and no war experiences were of record which could be used as a guide. It is therefore necessary that we study our military history and select out of the war experiences such pertinent examples and use the lessons learned from these as the basis of our peacetime training. To be sure it will be, as Clausewitz says, "that everything will depend upon holding to the absolute truth and this to the last detail" and it would be better "to teach the art of war from the outstanding historical examples." However, this can best be taught by those "who have become qualified by a singularly long war experience." We will not wholly be spared from the future occasions of uncertainties in war because we have only our peacetime experience and experimentation, with the new weapons and armored machines upon which we can rely. Our new theory must first be put into practice under the conditions existing at the beginning of the war.

After all there has been made available to us since the War of 1870-71 such an enormous amount of data and information, principally from World War experiences which has been so thoroughly studied, that we will not have to change our teaching. This fact will better enable us to employ our

Abstracted from *Militär-Wochenblatt*, 11, 18 February, 1935. "Aus grosser Zeit vor zwanzig Jahren. Kriegserfahrungen in der Verwendung moderner Kavallerie." By General v.Poseck

forces in the next war to a greater degree of efficiency than we did at the beginning of the war in 1914. Reconnaissance and the operation of the intelligence service is a function of the cavalry, an arm of quick decisions, great mobility, and a decisive force when properly employed in large bodies.

It appears that in industry and agriculture the latest improved methods are reducing the activity of man. This also appears to be true in the experimentation in the new methods of warfare wherein an effort is being made to replace the combat soldier and the horse by machines. The pre-war idea of the correct employment of the cavalry recognized the advice of Bernhardi and Schlieffen, to attack the enemy in flank and rear by fire, then to close with him and by means of the "arm blanche render him incapable of further combat." Our cavalry entered the war with these conceptions of combat. The awakening from this dream was followed by a violent change and in a short time the cavalryman by the utilization of the horse and with new equipment and arms was not only able to act defensively as General v. Pelet believed, but now operates effectively in the attack as Bernhardi wanted it. In its present modern form it has combined mobility with fire-power.

The cavalry tactics as discussed by Clausewitz in *The Employment of the Combat Forces in Battle* must be followed, but the army cavalry will be sent well out in front of the main bodies where it can be employed strategically. The employment will be influenced by the tactical situation and is dependent on the strategic considerations, the armament, equipment, the combat efficiency, and march capability of the troops. It is true, as Jomini says, "the major portion of the important operations depends on strategy, the directions given the forces, the tactics, and the leadership in battle." This is why there is a high command, which understands the powers and limitations of modern cavalry and how to properly assign missions to army cavalry capable of properly executing them.

When we closely examine the experiences of our cavalry and the changes brought about within it we find that there has been very little change in the basic ideas concerning the employment of the arm.

Moltke the Elder in 1868 had already prescribed the mass employment of army cavalry. He ordered the organization and instruction of army cavalry commanders' staffs which were trained and qualified for the higher command functions. In 1870 the cavalry divisions were distributed along the entire front and were at the disposal of the individual armies or of individual corps. Also, at the beginning of the World War we find the ten cavalry divisions similarly distributed on the whole German Army front with the exception that from two to three cavalry divisions were maintained as a composite corps. Later the I and II Cavalry Corps were placed at the disposal of the high command, while the IV Cavalry Corps was attached to the Fifth Army and the III Cavalry Corps was attached to the Sixth Army and was used up until 6 August on frontier guard. Germany was virtually handicapped with this method of employment. It was impossible to concentrate a large mass of cavalry at a decisive point or in a decisive direction on the German right wing in the rapidly moving advance which took place, because of the method of employment of the German cavalry. It may have been that the strengthening of the left German wing was in accordance with the Moltke plan of campaign for 1914 in which it was expected that there would be a major battle in Lothringen and that it was intended to engage the five cavalry divisions in the zones of the Fifth and Sixth Armies.

The fallacy of this action should have been foreseen since there was sufficient warning. Bernhardi and Schlichting had sufficiently stressed the mass employment of cavalry. And no less than Count Schlieffen wanted to have the faith placed in the powerful right wing where the decision was to be sought by a deeply echeloned formation with great strength in cavalry on the wings. Also, according to Bernhardi, it was here in this strategic area that there were to be several cavalry corps united at the proper time.

The German inspector generals of the cavalry were among other things, experienced cavalrymen and advocates, as were Bissing and Pelet-Narbonne, of the mass employment of cavalry at the critical and decisive point. But the recommendations of the inspector generals, who were the qualified advisers for the employment of the cavalry, were received and retained without action. "Who knows as well as I do," says

v. Poseck, "having been on service with General v. Kleist for four years, how all his recommendations, increase of the cavalry, efforts to form cavalry divisions instead of placing the cavalry brigades within the army corps, increasing the scope of instruction for higher cavalry leaders, prescribing and preparing suitable instructions for the advance of the army cavalry with proper missions at the opening of hostilities, were disregarded by the Chief of the General Staff and the Minister of War." Both of these authorities had in opposition to General von Kleist's recommendations insisted on placing a whole cavalry regiment as divisional cavalry at the disposal of the infantry divisions. How erroneous this was was well demonstrated during the course of the operations in the early stages of the war, when early in the fall of 1914 many of the infantry divisions released their cavalry regiments to the cavalry divisions because a regiment was in excess of the needs of these infantry divisions. Out of the sixteen available cavalry regiments one could have organized at least three cavalry divisions which would have been a useful and substantial reinforcement to the army cavalry on the right flank of the German forces.

Out of the available cavalry forces there could have been organized two cavalry corps composed of six cavalry divisions on the right flank of the Army as follows: The II Army Cavalry Corps Marwitz could have with its three cavalry divisions, the 2d, 4th, and 9th, advanced north from Lüttich where the the 2d and 4th Cavalry Divisions actually did march. Later the I Army Cavalry Corps Richthofen with the Garde, 5th and 3d Cavalry Divisions could have crossed the Maas between Lüttich and Namur and the Hermalle at Huy and Ardenne where actually the 3d Division did cross. These six cavalry divisions could have then, under the direction of the High Command, advanced westward on a frontage of 35 miles and could have arrived in the vicinity of Tournai on 22 or 23 August; whereas the Army Cavalry Corps Marwitz on account of its detour through Escanaffles only arrived on the Schelde on 24 August. How these six cavalry divisions could have operated to advantage will be shown later. The IV Army Cavalry Corps could have executed the reconnaissance of Dinant, and the 6th and 8th Cavalry Divisions that of Hollen. The III Army Cavalry

Corps Frommel would have had in this way the 7th and 3d Cavalry Divisions at its disposal south of Metz where the higher commanders did not know how to utilize the 3d Cavalry Division.

As can be seen from this general distribution, the cavalry had been scattered along a front of approximately 150 miles in width and as Frederick the Great would have said, "Scattered in all directions" instead of "concentrated strongly at one point, to strike the enemy to his disadvantage."

So much for the advance to initial positions. As the contact was made it became evident that the 5th Cavalry Division was misplaced in the area facing the French fortifications on the front: Montmedy—Epinal. The army cavalry rightly belongs on the flanks when close contact with the enemy is made and not on the front. Its place was on the flank especially since Germany hadn't had a plan for a left turning movement. It was impracticable to later order the divisions to the right flank due to the great distances they were from it. It happened that the 5th Cavalry Division, the IV Army Cavalry Corps, 3d and 6th Cavalry Divisions, and the III Army Cavalry Corps, 7th, 8th, and Bavarian Cavalry Divisions, which at periods were inactive and not under the control of the higher cavalry commanders, were attached and detached in time-consuming changes of position to individual army corps, thereby causing them to be uselessly shunted from one place to another, all of which finally resulted in their being badly used up. One could not determine when there were no possibilities for cavalry activity, why the cavalry was not spared for later use when critical opportunities such as pursuit or exploitation presented themselves.

One can say all in all that the mobilization orders and directives given by the High Command to the Cavalry Divisions of the III and IV Army Cavalry Corps did not indicate a thorough knowledge of the capabilities, character and qualities of the mounted arm. It was, for example, an unnecessary waste of cavalry troops to use them on border guard missions which could have been accomplished equally as well or better by mixed detachments. The IV Army Cavalry Corps was located in the initial advance 30 to 35 miles from the line of forts extending from Verdun to the defenses of the Maas. It had received orders to advance and reconnoiter on

a 75 mile front extending from Mézières—St. Mihiel in the advance of the German Fourth and Fifth Armies towards Carignan and Damvillers. It is quite evident that the reconnaissance forces as well as the divisions themselves could not break through the hostile resistance encountered east of the Maas. In spite of this the cavalry reported the directions of the hostile advance and fought an engagement at Longwy with heavy losses and at the same time screened the German advance by driving back the French cavalry forces.

When the divisions of the III Army Cavalry Corps on 22 August were found to be too exhausted for an energetic pursuit it was a strong indication of the fallacy of employing cavalry on unsuitable missions.

If motorized units of today had been attached to the cavalry in these early operations during the World War, they would not have materially changed the situation. Such mixed cavalry divisions could not have advanced against the fortresses on the French eastern front with their defenses, counter-measures, and obstacles. It would have been necessary to assemble them on the right flank for their effective use to reinforce the cavalry as a vital force.

In order to anticipate future operations it must be shown that motorized units of all types had they been available with existing good roads upon which to operate, could have rendered the cavalry units a most efficient service. On the other hand, in the eastern theater the lack of good hard roads and the bad condition of those available for use, made the employment of motors of any description prohibitive in the bad weather during fall and spring.

There is a further reminder of the obstacles which were encountered by the cavalry in its advance during the early days in August. The fallen trees and road demolitions were troublesome enough to the cavalry then, but to the motorized units and armored vehicles of today they would have been a far greater hindrance.

It must also be remembered that in all operations not only with the cavalry, there will come a time when organizations must operate without the assistance or supply from the rear establishments, as for example, the operations in the vicinity of Brzeziny in which mechanized units would have been disabled through lack of fuel.

But all this does not change the fact that the improvement of technique of all arms, all motorized transport and implements of war have improved the combat efficiency of the cavalry, especially when mounted and motorized cavalry cooperate and function together.

The assistance and support which can be given cavalry on reconnaissance and screening missions by aviation and armored forces, say in distant reconnaissance, has been actually proven and often discussed. The functions of cavalry cannot however be replaced by and taken over by aviation due to weather conditions, nor by motorized reconnaissance units due to darkness. Night reconnaissance by ground troops will be the rule rather than the exception and will have increasing importance.

Motorized units could have rendered the Cavalry Division of Marwitz and Richthofen while advancing in August, 1914, valuable service in France and Belgium where good hard surfaced roads were available. The hostile resistances encountered could have been more easily brushed aside in many cases. While it is admitted that motorized units can move faster than horse cavalry on the march, it must also be admitted that cavalry can pass these motorized units on the battlefield and that it has greater tactical mobility. "The combat efficiency of troops can soon be determined when they leave the roads," says a Russian professional soldier. In spite of all the improvements in technique of the new methods of warfare the horse can never be completely spared.

Without a doubt motorized supply and ammunition columns, provided the cavalry divisions had been supplied with them in the advance of August, 1914, would have avoided a great deal of wear and tear on the animal-drawn trains. These motor columns would have arrived at the required locations in a more serviceable condition. The removal of the field kitchens before the war by the order of the Minister of War from the cavalry units, and the failure of supply columns to provide for an ample supply of grain in campaign, is the primary reason for the exhaustion and suffering experienced by the Cavalry Corps of Marwitz and Richthofen. The French Cavalry Corps of Sordet and Conneau also suffered needlessly for these same reasons.

Regarding the question already mentioned of placing the army cavalry at the disposal of the Supreme Commander, it can be said that the I and II Army Cavalry Corps should have remained under the command of the Supreme Commander. Unfortunately this disposition, which was a correct employment of army cavalry, was soon changed. The II Army Cavalry Corps Marwitz was attached to the Second Army from 17 to 20 August, then from 20 to 22 September to the First Army, and from that date to the Sixth Army. The I Army Cavalry Corps Richthofen was under the direct control of the High Command to 20 August, then up to 16 September it was attached to the Second Army, and after that to the Sixth Army. Both Cavalry Corps were only under direct control of the High Command for a period of 17 to 20 days. The disadvantages which arose from their attachment to a certain army headquarters was that they lost the viewpoint of the High Command and became involved in the immediate local problems of the army they served. The divisions and corps staffs are inclined to lose sight of the larger strategical aspects of the situation with which the High Command is concerned.

Only by placing the cavalry under the High Command could the incessant changes in reconnaissance areas or zones of operation have been avoided. For example, the case of the II Army Cavalry Corps is taken from 21 to 24 August, 1914. In this case the change of assignment, first from the Second Army then to the First Army, was the real reason why the Cavalry Corps Marwitz first reached the west flank of the British on 26 August and was forced to attack frontally instead of by an attack against the flank and rear.

On 30 August the situation was as follows: the Cavalry Corps Marwitz was assigned to the First Army and was at Roye, the Cavalry Corps Richthofen under orders from the Second Army was at Royon with the 4th Cavalry Division of this cavalry corps at Beaulieu les Fontaines. This location was only 7 miles from the 5th Cavalry Division (part of the I Army Cavalry Corps) located at Bauchelles. If both these cavalry corps and the 5th Cavalry Division in cooperation had been dispatched on Paris they could have had the opportunity to be a decisive factor on the right flank of Kluck's Army during the operation of the Battle of the Oureq, as

well as in the Battle of the Marne. In this threat on Paris motorized units certainly would have had a splendid chance to cooperate and be of great service. Instead of cooperating, the two cavalry corps on 31 August were already operating on missions for the armies they were serving, the execution of which carried them apart, one to Compiègne and the other to Soissons. Not once during the Battle of the Marne, in the well known "gap," were they employed under one command, and they were not together until the middle of September when they crossed to the north of the Aisne.

The main mission of the cavalry, that of cooperating with the other forces in battle against the sensitive positions of the enemy, brought the German cavalry many splendid successes on both the Western and Eastern fronts. This was also the case during the advance to the West in 1914, in pursuit of the retiring enemy in the operations of the II Army Cavalry Corps at St. Hilaire, Cottenieres, Caudry, Béthencourt, and Néry and in the operations of the I Army Cavalry Corps at Zorées, Soissons, Branges, and Mount St. Pére. In these engagements the armored cars and tanks could have been of great assistance in reducing the resistance offered by the enemy rear guards.

If the Allies had had available the new mechanized arm, the Cavalry Corps of Conneau could have broken through the German line between the First and Second Armies on 9 September. The Cavalry Corps of Marwitz and Richthofen were successful in checking the foresighted and energetic British as well as the Cavalry Corps of Conneau and effected a three-day delay of the Allies in their crossing of the Marne.

Due to the efficient rear guard operations of the Army Cavalry, the German withdrawal was successfully executed. Also in the eastern theater the German Army Cavalry had many successes, such as the operations at Schaulen, in Kurland in 1915 and in Rumania in 1916. The army cavalry successfully carried out an encirclement and an attack against the flank and rear of the enemy in the case of the I Army Cavalry Corps on 1 September, 1914, at Soissons and by the 4th Cavalry Division of the II Army Cavalry Corps at Néry. The French 5th Cavalry Division de Cornulier-Lucinières from 8-10 September executed an encirclement around the right flank of the First German Army. This raid would have had,

if operating in conjunction with mechanized units, less losses and greater success than the mere destruction of a German motor column, several autos and airplanes. In the Eastern theater at Lodz, Wilna, in Lithuania and Kurland, the army cavalry operated successfully against hostile flanks and rear. The destruction of the Russian railroad station at Zienny by the Bavarian Cavalry Division 20 miles in rear of the Russian front at Kovno on 7 May, 1915, was an example of this type of action. If the 1st Battalion, 5th Guard Regiment, then with the Bavarian Cavalry Division, instead of being transported in small armored cars, could have been transported in motor trucks, it could have reached its objective with greater ease and more rapidity.

By extending the flank of the army and attempting to check an encirclement of it by the enemy as was done on the Oise and Somme, at Lens, La Bassée, Hazelbrouck and Warrenton, the two opposing army cavalry forces greatly influenced the stabilization of the line and the resulting four years of trench warfare. In this type of flank cavalry action there would have been an excellent field for the services of motorized units since so much depended on the timely entry of units into action. Single French motor vehicles with machine guns mounted on them had at that time caused some delay to our reconnaissance units.

The stabilization of the line on the Western Front precluded the employment of the cavalry as such, but when the German offensive of 1918 was launched there came a critical situation at Amiens, when the want of efficient fighting cavalry divisions was greatly felt. The Allied cavalry was dispatched and by forced marches arrived on the scene acting as a mobile army reserve, filled the gap in the battle front, thereby preventing a breakthrough by the German forces and as Pétain says, "saved the French Army." This is an example of a forced march in rear of the army front without hostile interference save aviation, where everything depended on speed and mobility and where only troops transported in motors could have arrived more rapidly than the mounted units.

Mounted horse cavalry will always have its full usefulness in other theaters of operations where such highly developed road nets are not available as in eastern France. Even though

it does not possess a march rate equal to motor units it can withdraw, detour, overcome, or avoid the effects of aerial attack and artillery fire with greater facility than can motor columns. On 2 September, 1918, a mixed British detachment of two squadrons, six motorized trench mortars, and eight armored cars was advancing on the Arras—Cambrai road. During heavy artillery fire all except the cavalry had to remain on the road on account of the impassable condition of the terrain alongside. The armored cars could not advance and two were promptly put out of action. As has already been pointed out, the mobility of mounted cavalry in difficult terrain is greater than that of any other combat troops which are dependent on roads and must leave their transport in order to fight. The mounted cavalry can attack, withdraw, and rapidly change positions to attack at some other point.

The horse and the motor have their powers and limitations. With the cooperation of both, the cavalry division will be an arm of greater mobility and increased fire-power. But the cavalry can only be of increased value to the modern army in a war when it is provided with the necessary modern armament and equipment in peace time. Only those countries which have had unimportant war experience with cavalry have diminished their horse cavalry. They will regret this very much, since it takes a much longer time to train and organize horse cavalry than it does motorized units. We must guard against this and profit from this example, because our supply of serviceable horses has always been ample.

The essentials for the future successful employment of our cavalry arm requires an organization composed of mounted divisions and mechanized units to be employed in mass under a higher command which has a thorough understanding of its powers, limitations, and employment and which will not restrict the action of its leaders by improper orders, thereby allowing them the required freedom and latitude in the accomplishment of their missions.

THE VERTICAL ENVELOPMENT

By Major F. During, Infantry

Hesitatingly, but of late in an increased measure, a new method of fighting is beginning to gain strategic superiority—the vertical envelopment, or the envelopment from the air.

There is hardly a method which could be developed for using troops that is so without precedent in the history of war, as the vertical envelopment. The recent attempts in the English colonies cannot be considered actual experiences in view of the complete lack of counter-measures. Only the so-called sabotage sections have up to now been transported on giant planes during maneuvers.

This lack of experience is responsible for the hesitancy with which the problem is naturally being handled. Even a most superficial survey shows the technical, organizational, and tactical difficulties to be met, and this naturally has a discouraging effect. On the other hand, great optimists already see the sky full of troop transports. Both must be taken into consideration. For this reason an attempt is made in the following to give a short survey of the situation, taking into account all impediments and possibilities.

TECHNICAL

1. *Airplane material:* In view of the fact that due to safety reasons, too large a concentration cannot be considered, and for reasons of economy, too great a distribution cannot be made, nothing but a three motor plane with 125 to 150 miles per hour normal speed, about 625 miles range, 1350 feet ceiling, 2 tons useful load come into question. In all countries such machines are used today for air transportation, lead by the United States with its surprising new constructions. It is inadequate to use bombers for transportation means; special transports are too expensive; civil planes and freight machines, moreover, must be protected by pursuit flyers. The planes should have a low landing speed (as low as possible), and should be supplied with radio devices. It is inadvisable to restrict oneself to hydroplanes and to fly during the night as has been suggested in the case of some sabotage troops. The duties and basic anticipations are not alike.

Abstracted from *Die Deutsche Wehr*, 6 September, 1934. Article by Hans Steinberger (Munich).

2. *Weight:* The exceedingly fine reaction of airplanes to over-weight forces one to consider particularly this point, which is not necessary in the case of troops transported on the ground. In the following a few figures with respect to weight are therefore quoted, which are to be considered basic elements for the proper handling of this problem:

The armed infantry soldier (weight of men, clothing, shoes, steel helmet, knapsack, minor equipment, gun, 150 rounds of ammunition, 2 hand grenades) about 210 pounds; 1 light machine gun with forked forward support, 36 pounds; heavy machine gun with tripod, 112 pounds; light trench mortar with loaded limber (about 60 mines at 9 pounds each), 1500 pounds; light field gun 96/16 with limber (24 shots at 16 pounds each), 3800 pounds; light field howitzer 16 with limber (12 shots ammunition at 34 pounds each), 4600 pounds; 1000 rounds ammunition in belts and in 2 boxes, 50 pounds; 1000 rounds ammunition with steel core in belts and in 2 boxes, 60 pounds; 1 machine pistol with 32 rounds of ammunition in drums 100 magazines, 240 pounds; 1000 hand grenades, packed, 1400 pounds; 250 gallons fuel, 1340 pounds; motorcycle with side-car (capacity: 1 cyclist and 500 pounds, burning 6 quarts per 62 miles), 700 pounds; automobile trailer (back wheels removed) about 1600 pounds; 2 cm. anti-tank and antiaircraft cannon with limber (empty) about 700 pounds; magazine with 20 rounds (limber holds 480 rounds in magazines or 552 loose rounds), 20 pounds; bicycles (for touring purposes) about 40 pounds.

For all modern armies, lower figures must be applied for the weapons. Due to the heavy weight of the arms themselves, some must be excluded from air transportation from the very beginning. The small articles of daily use must not be forgotten: rations, engineer and signalling material must be given due consideration.

3. *Transportation means on the ground:* The question of the choice of transportation after landing, is probably one of the most important. Little hope may be placed in possible seizure as the enemy will have anticipated this in part. Our own means of transportation must therefore be carried along. Due to lack of space rather than to the weight, cross-country passenger cars cannot be considered. Trailers (bicycle) with rear wheels removed can be transported. Motorcycles and particularly bicycles and man-power are to be resorted to as far as possible. In many cases new and substitute ways will have to be followed. Thus, for instance, consideration may be given to having guns pulled by strong motorcycles with side cars, possibly taking the limber separately. The transportation of fuel for the motors must by all means be considered as, firstly, men cannot do everything and secondly, the results

achieved with animals are in no proportion to the weight of such animals which must be transported. Attention is also called to the preparation of proper transportation containers for ammunition, etc., possibly using bicycles with pneumatic tires, steel tube constructions, motorcycles, etc. During the first few days the fuel required is to be supplied as follows:

- (a) Contents of the fuel containers of the vehicles themselves.
- (b) Using reserves of the returning airplanes.
- (c) Transportable containers taken along.
- (d) Seizure of any possible fuel found (not to be included in estimates).
- (e) Operating the towing vehicle with gas.

4. *Flight and landing:* After estimating the time required for flying, the same should, as far as possible, be commenced at dusk so that the landing may be made at dawn. It is necessary that every aviator be well-trained in blind flying. Definite instructions as to the choice of landing ground are to be taken along. These depend on the freight carried and on position to be taken. The unloading is to be done as fast as possible. Fuel which is deemed dispensable should be handed over and, if necessary, the radio equipment should be set up. Taking into consideration the difference in speed, a pursuit squadron and a mixed pursuit and bomber squadron start in the meantime. Shortly before landing they must meet above the supporting point and systematically destroy every known telephone, telegraph, radio, and other signal station by means of machine-gun fire and dropping of bombs. In addition they must watch all roads until the troops on the ground signal that they are taking over the task.

ORGANIZATION

The paramount necessity here is the formation of small but strong units, such as a reinforced battalion. In such enterprises complete regiments can no longer be considered. It would even be advisable to subdivide the battalion into reinforced companies and these again into reinforced platoons so that (1) immediately after landing, fighting units would be available even before any connections had been made; (2) in case of air attacks on the transport—which must surely

be expected—an entire class of arms would not be endangered. A reinforced battalion should therefore be formed, consisting of six main groups: (1) Staff with signal platoon, engineer platoon, fuel platoon, supply column, chemical platoon, antiaircraft-gun platoon, repair platoon. (2) Battery consisting of 4 guns, ammunition staff, observer, signalling, antiaircraft gun, and kitchen train. (3) Mixed staff, 10 pursuit planes, and 5 bombers (day bombers), supply group, repair group, signalling, and antiaircraft-gun group. (4) Three reinforced companies, each consisting of 1 rifle company with light machine-gun platoon, signalling, supply, engineer, and reserve detachment as well as 3 reinforced platoons each with three sections of riflemen and 2 light machine guns, platoon headquarters, and 2 heavy machine guns (half platoon). In order to secure the required secrecy, the six groups fly separately from different points. The determination of the number of transport machines required is an important and decisive factor in establishing the size of such enterprise. Here, naturally, only a rough estimate can be made, taking into consideration the usual margin for errors:

Group 1: Staff with signal platoon: 36 men, 3 motorcycles with side-cars, 1 radio set, signalling and telephone device, if possible using existing lines. Total weight about 3 tons, or 3 machines. Engineer platoon: 24 men, 3 trailers, 3 steel carriages, engineer material, weight 4 tons, or 4 machines. Fuel column: 250 gallons in 10 vehicles each, and 10 men, total weight 5 tons, or 5 machines. Kitchen train: kitchen trailer, 3 carriages (taken apart), rations, 18 men, weight 3 tons, or 3 machines. Chemical platoon: 18 men, 9 spraying devices, barrier material, weight 2 tons, or 2 machines. Antiaircraft gun platoon: 18 men, 2 antiaircraft guns, 2 motorcycles with side-cars, 240 magazined rounds, 1000 loose rounds, 16 bicycles, weight 2 tons, or 2 machines. Repair platoon: 12 men, arms and motor repair, weight 2 tons, or 2 machines. A total of 21 machines.

Group 2: 4 guns with limber and 96 rounds ammunition, 4 trailers, 36 operators and platoon leader, 120 rounds ammunition in 2 vehicles, 2 motorcycles with side-cars, weight about 8 tons, or 8 machines. Ammunition echelon: 4 wagons, 4 side-car machines, 8 men, 600 rounds ammunition, weight 4 tons, or 4 machines. Observer group: 8 men, 3 machines, implements and tools, 1 wagon with 125 gallons gasoline, weight 1 ton, or 1 machine. Signal troop: the same, only other implements and tools, equalling 1 machine. Kitchen train: kitchen, trailer, supply wagon, fuel wagon, 8 men, weight 2 tons, or 2 machines. Antiaircraft gun group: triple barrel machine gun on special carriage, 13-mm. 3000 rounds ammunition, limber, side-car machine, 8 men, fuel and tools, weight 1 ton, or 1 machine. A total of 17 machines.

Group 3: In addition to the mixed staff of 10 pursuit planes and 5 bombers, 10 machines are required for signal and kitchen detachment, fuel reserve, etc.

Groups 4 to 6: Company headquarters: 12 men, 4 motorcycles, weight at least 1 ton, or 1 machine. Signal detachment: 9 men, 3

machines, tools and implements, weight 1 ton, or 1 machine. Supply detachment: same as Group 2 or 2 machines. Engineer detachment: 12 men, 4 motorcycles, 4 trailers with tools, explosives, entrenching tools, collapsible rubber boats, etc., weight 2 tons, or 2 machines. Baggage: 4 trailers, 4 steel wagons with about 1,000,000 rounds of ammunition and tools and implements, 8 men, total weight 4 tons, or 4 machines. Light Trench Mortar platoon: 2 light trench mortars with filled limbers, 4 wagons with 100 mines each, 6 motorcycles with side-car, 1 tool wagon with repair tools, 2 turn tables (Drehscheiben), fuel and tractor with 3 men, roughly a total of 6 tons, or 6 machines. Antitank gun platoon: inventory same as Group 1, or 2 machines. Reinforced rifle platoon: 60 men, 6 light machine guns, tools and implements, 30,000 rounds, 3 machine pistols, 10,000 rounds, 2 heavy machine guns, 20,000 rounds, 2 wheelbarrows, 3 motorcycles, 3 steel wagons, weight about 7 tons; in case of three such platoons 21 tons, or 21 machines. A total of 29 machines. 117 machines will therefore be required for a reinforced company.

165 freight machines will be required to transport 955 men, 4 cannons, 6 trench mortars, 8 machine cannons, 2 triple-barrel machine guns, 18 heavy machine guns, 54 light machine guns, about 1000 rifles and sufficient ammunition, and transportation means for a couple of days. The weights transported amount to about 330 tons. It is more than questionable whether any of the large air fleets can readily transport such quantities, since bombers cannot be considered in view of their lack of space.

Therefore, the invading force, including the mixed bomber squadron, wireless operators, and planes remaining behind (casualties, etc.), consists roughly of 1000 men. Within a few days, replacement of personnel will be required in order to relieve those on duty and fully utilize the weapons on hand; furthermore, ammunition, food supplies, and fuel should be replenished. Whether it is advisable to adhere to the organization as at the start, when the commander is in a position to give his own orders, is of minor importance. It would be possible to arrange a new organization as a staff company, a battalion, a battery, a trench mortar company, a machine-gun company, and rifle companies. On the other hand, the organization of the transportation is of importance. It must take into consideration that: (1) Fighting groups must not be divided within themselves or separated from their ammunition; (2) that the landing order should designate a point which is not far from the object of attack. Naturally, the crew is to be well informed in advance by way of maps, pictures, etc., and is to be specially trained as to the conditions under which their services will be required. It should be

stated here that when establishing the size of the position, the number of reinforcements which can be sent should be taken into consideration. This is possible through reinforcement of personnel and material by air or through the aid of a raid of motorized troops with the object of reinforcing and expanding the position.

STRATEGIC TACTICS

It must not be the object and aim of such an expensive enterprise that it be organized as a capricious venture. Such a dangerous step can only be ventured in connection with other strenuous efforts intended as a decisive step in a battle or the war itself. For even if such measure is able to destroy vital enemy communications, it embodies the danger of the complete destruction of our own forces.

In order to justify such an enterprise, two questions must therefore be answered: (1) what tactical advantages does the strategic board hope to obtain, and (2) how does it hope to be able to prevent a complete isolation of the troops committed to the enterprise?

SUMMARY

The explanations no doubt have shown that hardly any of the greater air powers will be able to carry out a vertical envelopment on a large scale with regiments, etc. It is, however, probably only a question of time, when airplanes will be available in sufficient numbers. Therefore it is only advisable to study in good time a war means which will one day be of paramount importance.

METHOD OF COMBAT OF LIGHT AND MOBILE UNITS

Abstracted by Major F. During, Infantry

The British maneuvers in 1934¹ have produced some very interesting lessons.

The mission or missions which were given to the commander of the mobile units are of interest.

Abstracted from *Militär-Wochenblatt*, 4 February, 1935. "Kampfweise leicht beweglicher Kräfte." By Captain Crisolli

¹See RML No. 56, pages 112 and 114.

(1) He was to leave from Gloucester on 19 September, cross friendly lines, and advance about 70 to 75 miles into the enemy territory, in order to disrupt enemy installations.

(2) He was to prevent the arrival of an enemy infantry division, which was then at Salisbury, at which place was also a cavalry brigade.

(3) He was to attack the general headquarters of the East Army at Hetheravon.

(4) He was to return at 3:00 PM, 21 September, in order to participate in the main attack.



The following troops comprise the mobile units: one mechanized brigade, one motorized brigade, one cavalry regiment in armored cars, one motorized battery of field artillery, one motorized company of engineers, one motorized medical battery, one motorized supply battalion, and one battery antiaircraft artillery.

The mission to prevent the enemy infantry division and cavalry brigade from reaching their front line was a correct one, had it not been for the fact that the mobile unit had to return at 3:00 PM, 21 September. In order to do this, the commander was forced to leave the Salisbury area at 6:00 AM, 21 September. This permitted the enemy infantry division and cavalry brigade to leave Salisbury not later than 7:00 AM. Assuming that the infantry would march 12 miles that day, it could reach Warminster that evening. The cavalry brigade could reach the rear of its army by noon and if necessary, could enter the battle during the afternoon.

If the commander of the West Army considered the delay of the enemy troops at Salisbury as important, he should have given the mission to the mechanized units without qualifications.

To attack an enemy headquarters and perhaps to take the entire staff as prisoners, is better accomplished by a daring cavalry patrol. Such a mission should never be given to mobile units.

It is also faulty to give missions, as was given this mobile unit, as late as 48 hours before the beginning of the main battle. A mobile unit could be employed more advantageously at the decisive point of the battle. Certainly it should never be given missions, which, even though they meet with success, have no direct bearing on the main battle. Whether mechanized units will be capable of entering battle after the completion of mission as stated before, is rather doubtful.

The commander of the mobile units decided to advance with the motorized brigade in many small columns during the night, 18-19 September. Part of the brigade reached Hungerford before daybreak, where it went into bivouac under cover of the woods and adjacent villages. But the enemy observation aviation detected the advance. A strong aerial attack was ordered and executed against one column which was still on the road, causing many losses and great confusion. An advance into enemy territory at night is only excusable if friendly aviation reports the area clear of the enemy, otherwise an advance should be made during daytime. Again, units must not advance at night in many small columns, as control is totally absent. An advance in many columns is a correct procedure only during daytime.

The question arises whether the commander was correct in leaving the mechanized brigade in Gloucester. A mechanized unit moves slower than a motorized unit. It is also better suited for immediate combat. Therefore, the mechanized brigade should have been the first to leave Gloucester. As it was, the brigade was ordered to advance to Hungerford, 3:00 PM, 19 September, that is, after parts of the motorized brigade had been attacked from the air.

When the commander of the East Army heard of the presence of the West mechanized units at Hungerford, he concluded that an attack was imminent and he decided to

prepare for a defense. But the commander of the West mechanized troops remained inactive, which resulted that the East troops started to attack Hungerford. In the meantime, the motorized brigade had withdrawn via Newburg, while the mechanized brigade, being in the act of withdrawing to the west, became heavily engaged with the enemy. The maneuver was called off at 7:45 AM, 21 September. The commander of the West mechanized troops gave as his reasons for remaining inactive on 20 September, that the aerial attack on 19 September made an offensive action impossible. This was known to the commander on 19 September, but he nevertheless ordered the advance of the mechanized brigade. He should have left the brigade at Gloucester. If this brigade was ordered to advance in order to cover the withdrawal of the motorized brigade, a great error was made. The characteristics of a mechanized brigade does not warrant such action.

The question of gas and oil played an important role here. It was carried in the supply columns. Extra gas should always be carried on the vehicles. The British maneuvers have proven that the fast units did not come up to expectation. This was due to the fact that the proper employment and leadership of motorized and mechanized units is not yet understood.

**TWENTY YEARS AGO. THE ARTILLERY DURING
THE FIRST YEAR OF THE WAR**

By Major F. During, Infantry

Shortly before the War some of the German artillery officers were of the opinion that French views on artillery matters were the best, while at the same time, some French officers thought that the German views were superior to their own.

Both views or systems were basically alike in that both believed that victory could only be gained by infantry attacks, and that it was the mission of the artillery to do everything possible to prepare the way for the infantry. Among the many obstacles which the infantry meets in its attack, is enemy fire, which, playing an important and decisive part

Abstracted from *Militär-Wochenblatt*, 25 January, 4 February, 1935. "Aus groszer Zeit vor zwanzig Jahren. Erfahrungen über die Verwendung der Artillery im ersten Kriegsjahr." By Lieut.-General Marx, Retired

under all conditions of warfare, comes from two sources: small arms and artillery. Both should be put out of action or at least be neutralized. Up to this point, the German and French views were identical, but now we come to a difference of opinion. According to the German view, it is very difficult to put both enemy infantry weapons and artillery out of action simultaneously; there is the constant danger that insufficient means may be used against either of the two. It is far better to put the artillery out of action first, and after this has been accomplished and when only a small part of the artillery is sufficient to keep the enemy batteries down, should the mass of the artillery take the infantry weapons under fire. The French claim that this was the correct method until the artillery began firing from concealed positions. It is impossible to put concealed artillery out of action; the most which can be expected is the neutralization of enemy artillery, and to do this, only a small amount of artillery is needed; therefore the mass can be used against infantry.

It is true that after the first few months, and especially towards the end of the War, the German system was used advantageously in attacks against fortified positions, but at the beginning of the War, the French system was superior. General Percin adopted what he called "the play of contre batteries," in which the French artillery got into concealed position, and after a careful preparation, waited for the enemy artillery to arrive, at which time only a part of the French artillery opened fire. When additional enemy artillery arrived, other French batteries opened fire, permitting the batteries already firing to keep up their fire on their target until the enemy artillery was put out of action.

The reason for this procedure was purely technical, which proves that technique regulates tactics. It was the weakness of the French gun which lead to the saying: "Wait until you see a target, and then remain in position as long as possible."

It is important to place artillery in such a way that, in conjunction with the infantry, it can force its will upon the enemy. This is based on the French system, which uses "one artillery regiment for close-in fires (batteries d'infanterie) while the other regiment is used on counterbattery missions." It is a known fact that during the August battles all theories proved to be wrong, because they were based on faulty tech-

nical principles. It was absolutely impossible to put concealed enemy artillery out of action. Only when enemy batteries exposed themselves while going into position, or when artillery march columns or munition columns were visible, was artillery fire successful, but the problem of putting enemy artillery in concealed position out of action was never solved. Thousands and thousands of projectiles were fired at areas where the enemy artillery was thought to be emplaced, while in reality it was at a different place. Either the artillery fired too short or too far in rear of the actual enemy positions. The French system had one advantage: When the "batteries d'infanterie" were properly placed, they usually were successful, for artillery attached to infantry knows exactly what to do. The only mistake made was, that batteries did not always fire within their prescribed boundaries.

Tactics are always dependent on technique and tactics which are not in accord with technique must fail. In 1914 the technique had not found means to successfully act against concealed artillery. It would have been better had the mass of the artillery been used against infantry, instead of being wasted against concealed artillery. But the artillery refused to acknowledge that it was powerless against concealed enemy artillery; this resulted in both sides having faulty tactical principles.

During the War the unexpected lesson was learned that artillery fire caused comparatively few losses, but that the moral effect of artillery fire was enormous. The bayonet of the infantry belonged in this category. It was seldom used, but the steel at the end of a rifle had an enormous moral effect. This fact was never considered during peacetime maneuvers. It is most essential that when estimating situations in the future, this moral effect must be considered. The moral effect caused by artillery fire comes from a physical effect. The explosion of a projectile changes the air pressure, which is noticed through the ear and in turn affects the entire body, resulting in a shock or moral effect. And the larger the caliber, the greater the moral effect. It seems strange, however, that only high explosives, and not shrapnel, cause a moral effect, and unless one has a large quantity of ammunition, it would be better not to fire shrapnel at all in the future.

The degree of training between the German field artillery and its heavy artillery was clearly shown in the beginning of the War. The former had spent too much time on the parade ground and therefore did not come up to expectations, while the training of the heavy artillery in firing their pieces was of a superior nature.

In comparing the combat arms the following conclusions are drawn:

1. The German infantry was superior to the French infantry.
2. The German cavalry was superior to the French and Russian cavalry.
3. The German heavy artillery was superior to that of the Russians. No comparison can be made with that of the French.
4. The German engineers were superior to the French and Russian engineers, which was especially true at the beginning of stabilized warfare. Comparing the German field artillery with that of the French and Russian, it cannot be said that the German field artillery was superior, however.

WAR LESSONS LEADERSHIP

By Major F. During, Infantry

“Why was it, that the best army in the world with its excellent peacetime training and organization and instruction in leadership of all grades, was not able to win the war during its first year?”

This question is being asked by General Wetzell at the beginning of his study on leadership. Generalship, organization of general headquarters, plan of operations, etc., all being faulty, were contributing factors why Germany did not win the war in 1914, but the main reason was the fact that Germany failed to draw correct lessons from the War of 1870-71, in regard to the leadership of armies. The technical developments of radio, telephone, telegraph, railroad, motor, and airplane in time of peace lead to faulty principles.

Abstracted from *Militär-Wochenblatt*, 25 December, 1934, 4 January, 1935. “Kriegslehrer.” By General Wetzell, Retired

During the War of 1866, the Supreme Commander, King Wilhelm, personally directed the decisive battle of Königgrätz. In 1870 we again see the King with his Chief of Staff, east of the Mosel and the order for the decisive battle of Gravelotte—St. Privat was given by the Chief of Staff after a personal reconnaissance. The same occurred at the battle of Sedan. The Supreme Commander with his Chief of Staff, was always at a place from which he could personally direct the battle.

Such was the leadership of 1870. Since 1870 the system of communication has been highly developed, and during this time it was tested annually at the great maneuvers. But their use in war was not clearly understood. The capabilities of the new communication system were much overrated in time of peace and this led to faulty basic principles. During Moltke's (elder) time it was the duty of the Supreme Commander to be at the battlefield, but the large masses of troops and their organization into many armies, the increased fronts and the latest technical means of communication, changed this and it was not now considered necessary for the Supreme Commander to be with his troops. Schlieffen describes this as follows: "The Supreme Commander is far in rear in a house with many rooms, where radio and telegraph are installed. We find here telephones and signal apparatus, numerous motorcycles and motor cars, prepared for long trips. On a large table is the map of the entire battlefield and from here orders are sent by phone, reports are received from army and corps commanders, balloons and airplanes, which observe the movements of the enemy. The duty of the Supreme Commander is fulfilled when he, long before contact with the enemy is made, has issued instructions to his armies and corps as to their direction of march and areas to be reached."

This seemingly new thought is the reason for many omissions and errors by the high command at the beginning of the war. It was soon found that the technical means did not come up to Schlieffen's expectations. Due to the rapid advance, especially at the right wing, reports from the different armies did not reach General Headquarters in time. Radio refused to function and quite frequently it took many hours, and in some cases, days, for reports to reach the high command, and it took about equally as much time to decode the reports. All this was the reason why the high command

was in ignorance of the situation at the right wing before the crisis at the battle of the Marne. It was necessary for General Headquarters to send a radio to the First Army on 1 September, requesting a report of its situation.

This was a glaring example of faulty communication from below and insufficient contact from above. Motor cars and airplanes should have been used in this instance. Peace-time ideas and war realities are quite different. It is impossible to test the technical means of communication in peace-time to the extent that a war will demand. However, it was the fault of General Headquarters as well as of the armies, that motors and airplanes were not used sufficiently to supplement radio and telephone.

General von Freytag-Loringhoven has stated that "while the Supreme Commander cannot be visible to the troops as in Napoleon's time, his influence and his personality must be felt at all times. He will have to solve just as many difficult problems as others had to do before him. This fact is usually overlooked by those who still want the Supreme Commander on or near the battlefield." This view is in direct opposition to the action of the Supreme Commander at Sedan in 1870, and here we find the answer why the Germans did not obtain a victory during the first months of the war.

The younger Moltke thought that he could direct everything by being far in rear. Had he followed the footsteps of his uncle, he would have gone to Saarbruck on 14 and 15 August, where at that time a decision might have been fought. Having his headquarters in Coblenz, he should at least have established advanced headquarters at Saarbruck and Aix la Chapelle. It seems strange indeed that this thought never occurred to anyone prior to the war, either during maneuvers or while playing war games. It can be plainly seen that the capabilities of communication were overrated and that the examples of leadership of the older Moltke were forgotten. The modern high command belongs at a place where important decisions have to be made and this is only possible by the personal contact with army commanders.

Telephone and radio cannot replace personal contact, nor can they clear up misunderstanding or differences of opinion. Had Moltke visited the Sixth Army Headquarters on 14 or 15 August, he would, in all probability, have adhered to his

original plan of having a decision fought in Lorraine, or at least he would have influenced the battle according to his own views. But he sent Colonel N. Doumecs instead, and this officer was responsible for the battle developing into an "ordinary" one instead of being a "decisive" one.

After clearing the situation in Lorraine, Moltke then should have gone to Aix la Chapelle on 21 or 22 August and left from there by motor to the headquarters of the First and Second Armies. It is certain that in that case the advance of the First Army would have been different.

The many omissions and errors of the high command are largely due to faulty principles in leadership. Even though the supreme commander has a headquarters in rear, he should have used railroads and motor cars in order to be at places where decisions might be fought. It is imperative for a commander in a future war to make use of fast motor cars and airplanes to be taken to places where his personal appearance is necessary. He is, after all, the responsible leader, and his visits should at times include corps headquarters. It was unfortunate that a specially selected General Staff officer was not placed at the head of the communication troops during peacetime; this certainly should have been done during the war. This officer should have been a member of the operations group (G-3). General Headquarters and the different Army headquarters failed to make use of all means of communications. This was especially noticeable by the right wing during the Marne battle.

Maneuvers in time of peace and experiences based on them are not conclusive; they must be proven or disproven by war experiences. Another important lesson is that staffs of higher commands should be organized during peacetime, in order to have all members become acquainted with each other and have a chance to actually work together. This can best be accomplished in large maneuvers, war games, and command post exercises.

The selection of staffs should not be left to one person (Chief of Staff), but it should be a cooperative selection by the men with whom they have to work.

In conclusion, General Wetzell states that success in war is based on experiences of past wars, supplemented by experi-

ences in maneuvers and from such experiences, correct principles of leadership should be formed and followed.

SCHLIEFFEN AND MOLTKE THE YOUNGER

By First Lieutenant M.D. Taylor, Field Artillery

Germany entered the war in 1914 imbued with the strategical doctrines of Schlieffen. The application of these doctrines fell to Moltke the younger. Was the defeat of Germany due to fallacies in the teachings of Schlieffen or to their imperfect application by Moltke? Without attempting to answer these questions, directly, it will be shown that, in a large measure, the German failure was attributed to a dual weakness in the High Command:

- (1) Lack of preparation for a war on two fronts.
- (2) Lack of preparation for a war of coalitions.

I.—COUNT SCHLIEFFEN

While William II was notoriously inept in his selection of advisers and entourage, no one can deny the felicity of the choice that on 7 February, 1891, brought Schlieffen from obscurity and placed him in the chair recently vacated by Moltke the elder. Son of an old Pomeranian family, Alfred von Schlieffen had hesitated a long while between the career of civil functionary and that of a soldier. Eventually he chose the Guard cavalry, served through the campaigns of 1866 and of 1870, and later commanded the 1st Uhlans at Potsdam for seven years. Meanwhile he worked on the Great General Staff. The elder Moltke appreciated this silent and indefatigable worker, similar in many ways to Moltke himself. The Field Marshal virtually designated him as his successor.

During the period that he was Chief of Staff, 1891-1905, the accomplishments of Schlieffen were enormous. He completed the work of Moltke in training the peacetime Great General Staff. This body, at his proposal, was expanded from 50 to 162 officers. He was responsible for the organization and training of the heavy artillery as a mobile field arm. In his 1912 plan, he proposed to organize the army into 51 corps

Abstracted from *Revue Militaire Francaise*, October, 1934. "Schlieffen et Moltke le Jeune," by Lieut. Colonel Pugens, French Army

in which would be united active and reserve units. Finally he is regarded, in company with Count Haeseler, as the man who most clearly foresaw the character of infantry combat under modern conditions.

But his supreme contribution to modern warfare was his adaptation of the strategical doctrine of annihilation.

To Schlieffen a frontal attack, even though successful, is always weak for, after falling back, the enemy can always reestablish his resistance. Frontal attacks make for long wars, whereas the nicely adjusted economic structure of modern nations dictates a war of brief duration. But how could Germany, surrounded by enemies, hope for a crushing victory? There was but one way—to attack the enemy with superior numbers in flank and rear. Troops employed frontally must be weak; strategic reserves must be suppressed. The latter should be oriented in the decisive direction from the very inception of the advance.

Such was the theme of all the war games, staff rides, and maneuvers which Schlieffen conducted as Chief of Staff. The goal which he kept before the eyes of the German Army was Cannae, the ideal example of annihilation of the greater force by the lesser.

In 1905, Schlieffen favored a preventive war against France at the time of the Agadir incident.

Schlieffen insisted upon the necessity of crossing Belgium in attacking France. In this he was opposed by the diplomats, notably by Prince von Bülow, but was supported by the Kaiser.

In his dealings with William II, the attitude of Schlieffen was intelligent and tactful. His predecessor, Waldersee, had been dismissed because of his free-spoken criticism of the mistakes committed by the Emperor as a commander in the 1890 maneuvers. Hence, Schlieffen was very careful to avoid wounding the susceptibility of the Emperor. He nourished the illusion that William decided and directed all things and thus protected himself and the prestige of his master.

II.—MOLTKE THE YOUNGER

But in July, 1905, Schlieffen was seventy-two years of age, infirm, and long overdue for retirement. Who should replace him? After considering von der Goltz, von Bülow (who commanded the Second Army in 1914) and von Beseler,

the Kaiser fixed his choice on a personal friend, a member of his entourage, the nephew of the Great Moltke.

Moltke the younger accepted the post with genuine hesitancy and only after obtaining the promise of the Kaiser to give up personal participation in army maneuvers. Moltke had many admirable personal qualities, but prior to 1905 had not been a deep student of the higher conduct of war. Above all, he lacked the force of character required by his great responsibilities and this lack could not be supplied by any of his close collaborators, Stein, Tappen, Hentsch, and others. Ludendorff with his strong views would have been the ideal complement to Moltke.

III.—WAR ON TWO FRONTS

German war plans had to be predicated on a war on two fronts. Who would be German allies in such a war? Schlieffen never counted seriously on the aid of Italy. Probably the Kaiser was the only high personage in Germany surprised when the defection of that state became known in August, 1914. Both Schlieffen and Moltke were prepared to find Germany and Austria standing alone against a superior coalition.

In such a war a maneuver on interior lines was clearly indicated. In which direction should the principal attack be made initially? Schlieffen opposed an attack in the east because the Russians had withdrawn their concentration areas farther to the east and had fortified the line of the Narew. A quick decision would be difficult to obtain, and Schlieffen was haunted by sinister memories of 1812. Besides, the inadequate railway net in Russia would make it difficult to shift troops rapidly from east to west when the time came to turn on France.

Hence, in 1905 and 1912, Schlieffen proposed using against France $40\frac{1}{2}$ corps, 11 cavalry divisions, and $26\frac{1}{2}$ Landwehr brigades. He left in the east only Landwehr units and was prepared to abandon German territory east of the Vistula. In later studies, however, he considered the possible necessity of reinforcing the eastern front; in which case he allotted it 5 corps, 2 cavalry divisions, and 7 Landwehr brigades. In this case the western forces would be reduced to $39\frac{1}{2}$ corps and 11 cavalry divisions.

Moltke accepted this latter allocation of forces and definitely made France the principal theater of operations. In 1914 Schlieffen's figures were practically unchanged.

Schlieffen submitted his solution of the execution of the attack on France in two memoirs, one in 1905 and the other in 1912. The strategical conception of both is the same, an envelopment of the French left by a heavy maneuver mass echeloned in depth which would roll up the hostile flank and drive the French army back on Switzerland. To the west of the Moselle, Schlieffen expected to have 30 corps later reinforced by two more from Lorraine. In Lorraine he would leave only 5 corps eventually reduced to 3. The 1912 plan differed from that of 1905 only in that it contemplated a probable French offensive at the outset of the war. This consideration induced Schlieffen to recommend attacks conducted as in siege warfare on the Verdun—Belfort front to assure the enveloping force sufficient time to pass the Antwerp-Namur defile. Thus the maneuver assumed the form of a double envelopment which had one serious defect, a lack of means to put it into effect.

Moltke's plan was based on these memoirs of his predecessor; it has been said that his plan of concentration was an ill-made coat cut from the two previous plans of Schlieffen. While Moltke agreed with Schlieffen as to the importance of the French theater, he strayed from the Schlieffen strategic conception in attributing a smaller importance to the enveloping movement through Belgium. He had many reasons for hesitating at a definite and unconditioned massing of his strength in the north. He disliked the violation of Belgium for political reasons. He had made by the General Staff numerous studies of plans which would avoid the invasion of Belgium but was forced reluctantly to conclude that this phase of the Schlieffen plan was unavoidable. It is to be noted that this final decision was taken without consulting the Chancellor of whom the Chief of Staff was independent in the organization of the German government.

Moltke found other reasons to hesitate in the fear that Alsace-Lorraine and East Prussia would be quickly overrun by the enemy. To avoid the former occurrence, he began to form plans for a counteroffensive in Lorraine to be made after the French had been enticed into the region of Metz

and the Nied. With the increased importance of the Lorraine front, Moltke began reinforcing it in his concentration plans until in 1914 it received about one-third of his total forces as compared to the one-seventh allotted it by Schlieffen. When the campaign opened, it is not clear where Moltke meant to make his decisive effort. Apparently he hoped to be victorious in Lorraine and then shift troops to his right flank.

When would it be possible to reinforce the Russian front? Schlieffen persistently refused to indicate a precise date. In 1909, Moltke answered between 30 M and 40 M; later on, 12 May, 1914, he indicated to General Conrad at Carlsbad that he hoped to defeat France by 60 M. Yet by 25 August, 1914, Moltke allowed himself to believe that the French army was beaten and that two corps could be released to the east where Prittwitz was describing the situation as desperate.

The concentration plans of both Schlieffen and Moltke were rigid and were not supplemented by alternative plans. For example, there was no plan of concentration against Russia alone. Consequently, it was with great consternation that Moltke on 1 August, 1914, received the personal order of the Kaiser to turn the German army solely against Russia since England was promising to remain neutral and to keep France passive if the latter were not attacked. The work of years was threatened with destruction by this decision, as the possibility of war on one front had been wholly unforeseen. Fortunately for Moltke, a telegram from the King of England soon convinced the Kaiser that the previous arrangement could not be carried out.

IV.—PREPARATION FOR A WAR OF COALITION

We have seen that Germany could count only on Austria in a European war. What steps had been taken to assure coordination of effort between the two allies?

In the first place the cooperation between the two was limited by treaty to the eastern front. Up to 1893, the following joint plan of campaign existed: The two armies were to concentrate in Upper Silesia and Central Galicia and debouch side by side into southern Poland. Thus both allies exposed parts of their territory; the Germans, Eastern Prussia, the Austrians, Eastern Galicia. In 1893, this entente

was destroyed by Austrian fears for Galicia and no common plan existed for some time thereafter. In 1909, the Bosnia-Herzegovnia crisis forced the allies again into a common understanding. Austria, threatened on two fronts by Serbia and Russia, was hesitating to throw the bulk of her forces against Russia. As a condition to the latter course of action, Conrad announced that he would not undertake the offensive in the direction: Lublin—Kowel as the Germans desired unless the small German army left in the east would attack along the Narew in an effort to join hands with the Austrians in Poland. Moltke hesitated to give his assent since he realized as had Schlieffen that the German forces were inadequate to force the defenses of the Narew. In the end he agreed but probably never intended to keep his promise. Certainly no mention of the Narew offensive is contained in his instructions to Prittwitz. Conrad never forgave the Germans this breach of faith.

No definite agreement was ever reached prior to 1914 as to the forces each power would keep on the eastern front. To Germany the front was necessarily a secondary theater and was destined to receive a minimum of troops. The Austrians were constantly urging an increase in the German forces, yet could not decide themselves to turn their mass definitely against Russia. In fact, two concentration plans existed. The R plan called for four-fifths of the Austrian strength against Russia and one-fifth against Serbia. The B plan was a partial mobilization of two-fifths of the army against Serbia. The danger of the latter plan was that in the case of a delayed Russian intervention in behalf of Serbia, only weak forces could be brought against the Russians in Galicia. Thus, the plan to be put into effect depended upon information of the attitude of Russia at the time of the mobilization. If this information arrived too late, the Austrians risked a dispersion of forces between two theaters. This was the case in 1914. On 31 July, 1914, 23 Austrian divisions were moving toward the Serbian border while only $26\frac{1}{2}$ remained available to be directed against Russia. To this first mistake Conrad added the second of attempting an offensive on both fronts.

Would a unified command have been possible in the east? This appears doubtful. The missions of the two armies were

too different. Germany wished to protect Eastern Prussia, Austria, Galicia, and the route to Vienna and Budapest. The lines of retreat of the two armies separated at right angles. Furthermore the absence of mutual confidence was a moral barrier to close cooperation.

CONCLUSION

Whatever the faults or merits of the strategical concepts of Schlieffen as applied by Moltke it appears that neither was prepared to meet the problems of a war of coalition waged on two fronts. It was lack of appreciation of these problems that caused the German High Command to lose the Marne campaign and eventually the war.

THE MILITARY CONSEQUENCE OF THE RETURN OF THE SAAR TO GERMANY

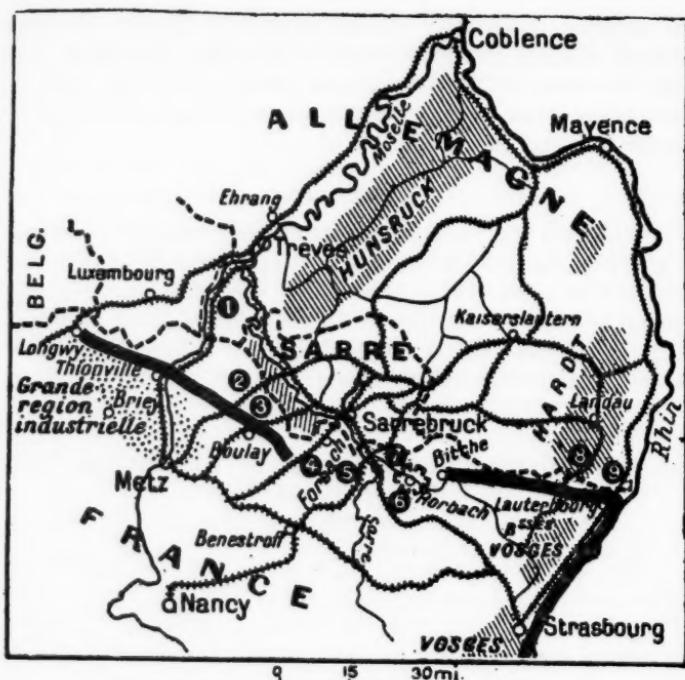
By Captain G.B. Guenther, Cavalry

The Saar plebiscite of 13 January and the correlative decision of the League of Nations on 17 January, have important military consequences for France. Some of the more important ones, in view of the geographical position of the Saar on the northeastern frontier of France, are considered in the following article:

The Saar is located on the northeastern boundary of France and is somewhat of a basin between the German mountain ranges of Hunsrück and Hardt. It is situated on the most direct and most convenient road from Mayence (Mainz) to Nancy and the great French industrial region on the one hand, and to Metz—Briey—Longwy—Thionville, on the other. It is for this reason that six of the nine railway lines which penetrate from Germany into France between Luxembourg and the Rhine pass through the Saar. The territory of the Saar constitutes a large regulating station with its 250 miles of railway lines within an area of that of a French department (about 800 square miles).

Saarebrück is an important railway junction similar to those of Tréves-Ehrang and of Kaiserslautern which are capable of dispatching 120 military trains per 24 hours. The

Abstracted from *Excelsior* (French magazine), 22 January, 1935.



Boundaries ----- Mountains Railroads: Double track ----- Single track -----

French fortifications:
 Completed Under construction

lateral railway line: Tréves—Sarrebruck—Kaiserslautern or Landau, close to the French frontier, is therefore of considerable value to Germany. A second lateral line: Tréves—Kaiserslautern, passing north of the Saar territory, is less suitable for the transport of troops because it is partly a single track line in the mountainous region of Hunsrück.

Moreover, the hills on the left bank of the Saar River are, for the most part, situated in German territory. These

hills constitute the northern ridge of the Lorraine plateau. Well organized observation positions will henceforth enable the Germans to closely observe the French fortifications and even the approaches of Metz, at a distance of 20 miles, and they will also be able to prepare artillery emplacements, which will be concealed to French observation. Finally, the valley of the Saar, which, with the exception of the heights of Forbach, cannot be observed from French artillery observation forts, will make it possible for German tanks to cross the river easily, an operation which is always very delicate. The Franco-German frontier on the Saar front is clearly unfavorable to France. "It is a frontier of invasion," declared the French delegation at the Peace Conference in 1919. As a matter of fact, the events of 1870 and of 1914 have proved the veracity of this statement. In other words, the Saar has once more become a zone of concentration and a military camp on the French frontier for the benefit of Germany.

These facts have been recalled in order that conclusions may easily be deduced therefrom, especially if it be added that the French fortifications system along that frontier has been organized as follows: The immediate protection of French territory is not continuous. There are two fortified regions organized with very strong permanent fortifications: one of these regions extends from Longwy to Boulay and protects the entire iron basin at Briey, as well as the large industrial region of Metz—Thionville; the other extends from Bitche to Lauterbourg and defends northern Alsace. Between these two towns there is a gap which is called a "defensive sector" where there are natural obstacles, such as the heights of Forbach. In this "defensive sector," the efforts have been limited to planning in detail the defensive works to be constructed in the event of a conflict, in order to complete the line of permanent works.

It is therefore easy to realize the danger of a sudden German attack launched from the Saar front. To remedy the situation, credits were recently voted by the French Parliament for the construction of permanent works on the plateau of Rohrbach in the above-mentioned gap. Nevertheless, the fact remains that vital objectives are within reach of a German attack, if the latter captured by surprise within a few hours the fortified zone between Boulay and

Thionville, or if it penetrated within the gap. These vital objectives are Metz and the industrial region northwest; Benestroff is the junction of the railway lines between Metz and Strasbourg. Lorraine would then be invaded and the northern part of Alsace enveloped, as well as the fortifications on the left bank of the Rhine and the Vosges.

These eventualities are mentioned as possible in view of the departure of the Government Commission of the League of Nations from Saarebruck and give weight to the steps taken by France at Geneva for the purpose of including the Saar in the demilitarized Rhineland Zone.

The same applies to the destruction in Saar territory of a railway line from the west to east, connecting north of Saarebruck, the two large north-south railway lines, as well as to the reduction in the length of certain military detraining platforms, in order to limit their use to commercial traffic. Similar destructions were carried on in the Rhineland in 1929 after the conclusion of a direct Franco-German agreement.

Furthermore, France will no doubt have to take certain precautions within her territory near the Saar where Germany has just recuperated the value of three army corps of mobilizable men. The question raised is that of the reinforcing of the French covering forces, that is to say, of the suitable garrisoning of the fortified works extending from Thionville to Lauterbourg. This constitutes a problem of effectives, which, linked with that already raised by the deficit of the lean years, is liable to influence the question of the extension of the length of military service in France.

The return of the Saar to Germany is a master pawn on the chess board of the Franco-German Frontier.

Section 3
DIRECTORY OF PERIODICALS

Included in this directory are only those periodicals from which articles have been selected.

See also, Section 8, "List of Periodicals Indexed and Key to Abbreviations."

MILITARY AND NAVAL PERIODICALS

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Journal of the United Service Institution of India (Great Britain—India).....	91
Revista del Ejercito y de la Marina (Mexico).....	109

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Canadian Defense Quarterly (Canada).....	87
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Section 4

CATALOG OF SELECTED PERIODICAL ARTICLES

This section catalogs the articles selected from Library periodicals for the current quarter. Periodicals in this Catalog are arranged alphabetically.

ARMY AND NAVY JOURNAL

2 February 1935

- (1) SERVICE PAY SITUATION
- (2) EARLY ACTION ON ARMY PROMOTION RELIEF SEEN
- (3) PROGRESS IN MECHANIZATION
- (4) AIR CORPS FLYING QUALIFICATIONS
- (5) REPORT ON DEFENSE AVIATION
- (6) ARMY PROMOTION BILL

9 February 1935

- (7) GENERAL MACARTHUR URGES \$400,000,000 PROGRAM
- (8) ARMY PROMOTION BILL
- (9) ARMY ENLISTED PROMOTION
- (10) INDEPENDENT AIR ACTION

16 February 1935

- (11) PAY SITUATION
- (12) ARMY ENLISTED PAY REFORM
- (13) SENATE GROUP APPROVES ARMY PROMOTION BILL

23 February 1935

- (14) ARMY PROMOTION ACTION SEEN IN SENATE AND HOUSE
- (15) SERVICE PAY SITUATION
- (16) ARMY APPROPRIATION BILL

2 March 1935

- (17) ARMY PROMOTION BILL
- (18) MOVE TO PREVENT CUT IN SERVICE ALLOWANCES
- (19) ARMY HOUSING AND PERSONNEL

9 March 1935

- (20) VOTE ARMY ENLISTED INCREASE
- (21) SENATE ACTS TO PREVENT SERVICE ALLOWANCE CUT
- (22) GENERAL MACARTHUR'S TESTIMONY

16 March 1935

- (23) ALLOWANCES FOR AUTOS
- (24) SERVICE PAY DEVELOPMENTS
- (25) DROP ADVANCED RANK DATE FROM ARMY BILL

23 March 1935

- (26) NO ARMY FORCED RETIREMENTS
- (27) SAVING OF ALLOWANCES BY CONFEREES IS LIKELY
- (28) ENLISTED MEN'S RATIONS
- (29) ARMY RETAINS LEAVENWORTH DISCIPLINARY BARRACKS

30 March 1935

- (30) TO CONSIDER ARMY PROMOTION
- (31) WAR DEPARTMENT SUPPLY BILL APPROVED BY CONFEREES
- (32) ARMY PROMOTION IN SENATE
- (33) GENERAL MACARTHUR TELLS OF FIELD EXERCISES

6 April 1935

- (34) CONSIDER BILL ASSURING CREDIT FOR LONGEVITY
- (35) SENATE MAY PASS ARMY BILL; REVISION OPPOSED

13 April 1935

- (36) WAR DEPARTMENT PROMOTION BILL PASSED BY SENATE
- (37) ALLOWANCES RESTORED; LONGEVITY BILL FAVORED
- (38) INCREASE IN REGULAR ARMY AND NATIONAL GUARD APPROVED
- (39) MILITARY POLICY OF THE PHILIPPINES
- (40) FIELD ARTILLERY FIRE

20 April 1935

- (41) LONGEVITY BILL PASSES SENATE; HOUSE FAVORS
- (42) NAVY LEADERS TESTIFY ON AIR FORCE PROPOSAL
- (43) HOUSE GROUP TO TAKE UP ARMY PROMOTION LATER

27 April 1935

- (44) AIR BASE BILL FAVORED
- (45) URGE WEST POINT BILL
- (46) HOUSE GETS NAVY BILL TOTALING \$457,786,261

ARMY AND NAVY REGISTER

2 February 1935

- (1) AVIATION COMMISSION'S REPORT
- (2) PAY RESTORATION

9 February 1935

- (3) NAVY STAFF CORPS SELECTION
- (4) INCREASE OF REGULAR ARMY
- (5) AN ADEQUATE ARMY

16 February 1935

- (6) STRENGTH OF LINE OF NAVY
- (7) NAVY STAFF CORPS SELECTION

23 February 1935

- (8) WAR DEPARTMENT APPROPRIATIONS
- (9) ARMY PROMOTION BILL

2 March 1935

- (10) PROMOTIONS IN THE ARMY
- (11) NAVY LINE PERSONNEL BILL

9 March 1935

- (12) TEMPORARY PROMOTION, AIR CORPS
- (13) SUBSISTENCE, RENTAL ALLOWANCES
- (14) ARMY APPROPRIATIONS

16 March 1935

- (15) ARMY PROMOTION BILL OPPOSED
- (16) SUBSISTENCE, RENTAL ALLOWANCES

23 March 1935

- (17) ARMY PROMOTION BILL
- (18) NAVY STAFF CORPS LEGISLATION
- (19) COMPUTING RETIRED PAY

30 March 1935

- (20) NAVAL MANEUVERS
- (21) APPOINTMENT OF LIEUTENANTS

6 April 1935

- (22) NAVY LINE BILL
- (23) ARMY PROMOTION
- (24) ARMY PROMOTION LIST

13 April 1935

- (25) ARMY PROMOTION BILL
- (26) ARMY APPROPRIATION ACT APPROVED
- (27) OPPORTUNITY FOR ARMY COMMISSION
- (28) HOWITZER PLATOON CROSSES Isthmus

20 April 1935

- (29) INFANTRY PREPARES TO FIGHT
- (30) TEMPORARY RANK
- (31) DEPARTMENT OF AIR CONDEMNED

27 April 1935

- (32) LIMITATIONS ON STAFF ASSIGNMENTS
- (33) INCREASING CADETS AT U.S.M.A.
- (34) NAVAL APPROPRIATION BILL

ARMY ORDNANCE

January-February 1935

- (1) DEFENDING THE NATIONAL DEFENSE. Hon. Harry H. Woodring
- (2) THE PRODUCTION OF MUNITIONS—A STATEMENT OF WAR DEPARTMENT POLICY
- (3) INDICTMENT OF "PASSCHENDAELE." Captain Liddell Hart
- (4) HISTORY—MILITARY AND GENERAL. Nickerson
- (5) NAVIES IN THE AMERICAN REVOLUTION. Captain Knox, U.S. Navy
- (6) SMALL ARMS IN THE A.E.F. Colonel Phillips
- (7) FIRST STAGES OF THE MEXICAN WAR. Colonel Crimmins
- (8) EFFECTIVE BOMBING. THE IMPORTANCE OF AERIAL SIGHTING MECHANISMS. First Lieutenant Koerper
- (9) MEN AND MUNITIONS. (An Editorial)

ARMY QUARTERLY (Great Britain)

April 1935

- (1) THE DEFENCE OF AUSTRALIA. Major Robertson
- (2) THE TERRITORIAL ARMY AND THE NEXT WAR. Colonel Edwards
- (3) THE MOBILITY OF MECHANIZED COLUMNS. Major-General Collins
- (4) THE PSYCHOLOGY OF A COMMANDER. GENERAL R.E. LEE: HIS LATEST BIOGRAPHY. Liddell Hart
- (5) THE ARMY OF TOMORROW. HOW TO MAKE IT A "CORPS D'ÉLITE." Lieut.-Colonel Seton Hutchison
- (6) A GERMAN TRENCH RAID. (With the operation orders)
- (7) FROM THE MARNE TO THE AISNE. THE DIARY OF AN INFANTRY SUBALTERN. Captain Syngue
- (8) THE 52ND (2ND BN. THE OXFORDSHIRE AND BUCKINGHAMSHIRE L.I.) IN THE RETREAT TO THE ANCRE, 21ST TO 25TH OF MARCH, 1918. Lieut.-Colonel Crosse
- (9) A SECOND SCHLIEFFEN PLAN
- (10) STILL LOOKING AHEAD. Captain Grant

BULLETIN BELGE DES SCIENCES MILITAIRES (Belgium)

By First Lieutenant J.I. Greene, Infantry

October 1934

- (1) PAGES D'HISTOIRE DE L'ARMÉE BELGE AU COURS DE LA GUERRE 1914-1918.—COMBAT DE PAPEGOED (11 SEPTEMBRE 1918). [History of the Belgian Army in the World War.—The fight at Papagoed, 11 September, 1918.] Captain Geeroms
- This is a personal account of a regimental attack on a limited objective. Each step of the action proceeded successfully according to plan.
- (2) LES COMBATS SOUS BOIS. [Fighting in woods.] (I) By "J.L.H."

The first of a three-part analysis of combat in woods. In his introduction the author refers to Rossignol—St. Vincent, Neufchateau, Luchy, and the whole action in the Ardennes in August, 1914, as synonyms of disaster. "The lesson that should be drawn from these bloody experiences is the pressing necessity for preparing for war in woods, and studying its conduct."

In this first installment the main points discussed are, in turn:

Kinds of forests: evergreen and deciduous.

Kinds of growth: high-crowned full growth, thickets, and these two together. The effect of each type on different arms is noted in brief.

Atmospheric conditions: Dampness, spongy soil, poor drainage for roads. These are favorable conditions for the hostile use of chemicals.

Effect of projectiles in woods: Fighting begins at such close quarters that losses are usually extremely heavy. Bullets readily pierce undergrowth and small trees. Shells form natural entanglements and obstructions to sight and movement.

The different arms in woods:

Infantry: Woods are "infantry terrain," although obscurity restricts the use of infantry's arms. Movement is often difficult, and limited fields of view contribute to surprise and panic. March direction is hard to maintain. Marksmanship is at a premium. Great numbers of men are necessary for forest fighting.

Artillery: Artillery is blindfolded in woods. Aerial observers can ordinarily see little or nothing. Fire by map or aerial photo is the rule. Almost without exception artillery's targets are the borders, clearings, roads and trails of woods, and small woods themselves. Troops should avoid these parts or traverse them rapidly. The difficulties of artillery in woods are no excuse for inactivity.

Cavalry: Woods are unfavorable to cavalry because of the difficulty of movement and ease of surprise. Employed with caution, however, cavalry is valuable.

Aviation: Observation varies with thickness of growth. In winter only evergreens offer concealment. The edges and paths of large woods and small woods themselves are guide posts of aviation, hence, most likely of observation. Ground troops should avoid them. Smoke is detected readily from the air. Panels are useless in thick woods. Artillery fire is hard to observe in thick woods.

Tanks: Trees of more than eight inches diameter, and large trees closer together than four yards, prevent tank operations. Tanks have difficulty also in dense small growth.

Gas: Woods are ideal areas for persistent gases. Hence troops should make certain that gas is not present, before entering.

Defense in woods: Large woods form strong natural defense positions. Edges of woods, however, should not be organized. The main position should be either some distance in front of a woods or some distance in it. Where the borders are well-defined, the latter is better. But where the woods thin out gradually to scattered growth, this growth usually forms a better defensive area. Outposts, on the other hand, can often occupy the edges of woods to best advantage. Again, when the border of a woods runs along a steep reverse slope, hostile artillery can not observe its fire; here the edge of the woods should be organized for defense.

In the interior of a woods, advantage must be taken of clearings, paths, roads, fire-breaks and the like, and other fields of fire must often be cut away. These, however, are readily observed from the air; hence, targets for hostile artillery. The use of traps forcing hostile infantry to approach only along desired and defended routes is also important. Where possible, a defensive position in woods should be partitioned into sectors by the use of natural terrain, obstructions such as ravines, and transverse crests.

Contact between units requires density of defense—many troops. Orientation must be emphasized down to include the individual soldier, day and night. Discipline is doubly necessary in woods.

This first installment concludes with detailed instructions for ground organization and fortification in woods.

(3) DÉTERMINATION DES APTITUDES. LES "ARMY MENTAL TESTS." [Determination of aptitudes.] Captain Yernaux

A discussion of an experimental adaptation of the American army intelligence tests in the Belgian Army. Conclusion: "... these tests ... are helpful in determining aptitude, not only in assigning duties in combat groups, but also as instructional tests. Their worth, however, should not be exaggerated"

(4) OU EN EST LA MÉCANISATION DES ARMÉES. [What of mechanized armies?] A translation of an article that appeared in "Army Ordnance," May-June, 1934.

(5) LA POLITIQUE NAVALE INTERNATIONALE. [International naval policy.] Captain Labourer An abstract of an article in "La Science et la Vie"; a brief summary of naval tonnage rivalry.

(6) LES ARMÉES DES PAYS BALTES. [The armies of the Baltic countries.] Léontin A summary of Finnish, Latvian, Lithuanian, and Estonian military strength.

Nation	No. of Peacetime Divisions	Strength of Peace Army	Mobilizable Population	Strength of Militia (garde civique)	Marine Strength
Estonia	3	13,500	90,000	40,000	856
Latvia	5	20,000	150,000	42,000	1,000
Lithuania	3	17,800	190,000	55,000	50
Finland	3½	25,500	300,000	170,000	1,300

(7) L'ATTAQUE DE FLANC. [The flank attack.] Colonel Ionescu A brief abstract of an article in "Revista Infanteriei" (Rumania), June, 1934.

(8) L'ARMEMENT DE NOTRE INFANTERIE. [The Italian infantry armament.]

Abstract of an article from "Le Forze Armate" (Italy), 20 June, 1934. Anonymous

Infantry must have an arm capable of destroying hostile machine guns in addition to its assaulting weapons. Light mortars and a regimental battery of 65-mm. guns are therefore necessary. A single weapon would, perhaps, be best for antiaircraft and antitank fire.

(9) LES ANIMAUX DANS LA GUERRE CHIMIQUE. [Animals in warfare by chemicals.]

Abstract from "Revue Veterinaire," March, 1931, and June, 1934, Veterinary General von Richter's study in Germany.

Tear gases affect animals less than men.

Suffocants require the use of animal masks. Gassed animals should be removed from the gassed area at a slow pace, and then kept warm, and allowed complete rest.

Vesicants cause death in 24 to 36 hours if the exposure is severe. Lighter cases usually recover in several weeks. Animals are particularly sensitive to eye burns. Full treatment is described in brief.

Sternulator chemicals have less effect on animals than on men. Heavy concentrations, however, have severe effects, which are produced in about 20 minutes. Removal from the immediate gassed area is ordinarily the only treatment necessary. Eyes may require special treatment.

The effect of other toxic agents is briefly described.

As regards general protection, the German authority recommends: careful selection of bivouac areas, covering the areas with cut grass, moss, double tentage, or impregnated tentage. Animals should be kept out of gassed areas; contaminated harness must be cleaned as soon as possible; chloride of lime is used on contaminated ground.

For individual protection little can be done. Masks afford a degree of protection, but good masks are not available. The author describes the type of masks desirable.

He concludes with a brief discussion of dogs and pigeons in warfare by chemical agents.

November 1934

(10) PAGES D'HISTOIRE DE L'ARMÉE BELGE AU COURS DE LA GUERRE 1914-1918.—LA CONTRE-ATTAQUE À LA GRAND' GARDE DU REIGERSVLIET, LE 6 MARS 1918, PAR LE BATAILLON DE LA 3^E BRIGADE DE LA D.C. [History of the Belgian Army in the World War. The counterattack at the Reigersvliet outpost on 6 March, 1918, by the battalion of the 3d Brigade of the cavalry division.] General Jones and Lieut.-Colonel Jones

This is an hour-by-hour account of a dismounted cavalry battalion action in trench warfare. Orders, artillery fires, and exact movements of subordinate units are given in detail. The Belgian unit captured 229 officers and men and 11 machine guns at the cost of 11 killed, 53 wounded. The German plan, as obtained from prisoners, is also given.

(11) LES COMBATS SOUS BOIS. [Fighting in woods.] (II) By "J.L.H."

The second installment of this article consists of an illustrative problem. The discussion contains many quotations from existing regulations, largely regarding the use of artillery.

(12) L'IDÉE DE MANOEUVRÉ. [The conception of maneuver.] Colonel Van Egroo

How can we talk of maneuver when ninety-nine times in a hundred a unit is an interior combat element with a continuous hostile area to its front? But the conception of maneuver includes not only that of moving troops about, but also those of determining and carrying out the main effort, and of collaboration between the combat arms.

Is maneuver something preconceived? We may have our plan, but the enemy also has his. Then what becomes of a planned maneuver? This can not be answered by a mere "yes" or "no." Maneuver is preconceived, but in varying degree, depending upon whether—

- (a) The enemy is also in movement or not.
- (b) The hostile dispositions are known or vague.
- (c) A unit is a large one or small.

It is, in effect, all according to the situation to what degree maneuver can be planned beforehand.

Nevertheless a plan is necessary, and the action of the enemy should not be permitted to cause the abandonment of the plan. It should be carried out "in spite of the enemy." A battle must be led, conducted—which is to say "based"—on a clear intention, without delay or hesitation. Tactics has for its purpose to make order out of the disorder that is all too liable to ensue from the multiple actions that make up a battle.

The author illustrates his points by historical examples of definite jobs well carried out in spite of difficulties.

(13) LES CROQUIS PANORAMIQUES DE REPÉRAGE. [Panoramic range cards.] Captain Leseul

(14) MÉTHODE DE TIR PRÉCONISÉE POUR L'ARTILLERIE COLONIALE. [The firing method adopted for colonial artillery.] Lieutenant van Cools

(15) VERS L'ARMÉE DE MÉTIER. [The tendency toward the professional army.] de Gaulle

A book review. More than that of any other country, says the author, the security of France requires a competent professional army. France now has only its army to defend its long northeastern border from invasion. This condition calls, not for an army of reservists, capable only of a hasty defensive, but for a modern, mobile, and largely mechanized force that can strike an immediate offensive blow when the need arises. Short term soldiers can not handle modern equipment—tanks, for example. "It is evident that on the ground, under the sea, and in the air, a selected personnel operating at maximum effectiveness the highly varied and most modern matériel, would possess against more or less confused masses, an overwhelming superiority."

As regards political aspects, the author writes that although the era of great conquests is past, the nations of the world are far from renouncing aggrandizement, limited though it may be. And for the ends they have in view they will eventually use their entire military forces. "The professional army, ready to march upon brief notice, organized to get quick and decisive results, fills the new political need."

Such an army should have an enlistment period of six years and should be composed only of carefully selected men. It should number 100,000. It should contain six line divisions and one light division entirely motorized and mechanized. There should be three brigades in each division. The first brigade, heavily armamented with 150 medium guns, 400 light guns, 600 machine guns, should be divided into two regiments, one of heavy tanks, and the other of medium tanks except for one battalion of light and very fast machines. The second brigade, comprised of two infantry regiments and a battalion of light infantry, should have 50 accompanying guns, 150 antitank guns, and 600 heavy and light machine guns, and equipment for the rapid digging of trenches. The third brigade, heavily equipped with artillery, should have two regiments, one of heavy howitzers, and the other of lighter long-range guns. This brigade should also contain an anti-aircraft battalion. In 15 minutes such a brigade should be able to fire 100 tons of projectiles.

The division should also contain a battalion of engineers, a battalion division train, a reconnaissance battalion, and a battalion of observation aviation.

The additional division besides the six line divisions should be of the same general composition but equipped throughout with lighter matériel, and faster moving machines. Its chief mission would be distant reconnaissance and security.

There should also be a general reserve consisting of a brigade of very heavy tanks capable of attacking permanent fortifications, very heavy artillery units, pursuit aviation, and reconnaissance aviation.

An army of this kind would be a big step beyond the warfare of masses; through the combination of speed and force it would revive maneuver. A new tactical doctrine would be required. Combat would become a series of rapidly dealt impacts, unforeseen and powerful.

As to the conduct of such an army, the author says: "Without doubt it would continue to be possible, and essential besides, to carry on the planning and preparation that reduce the uncertainties of war. But once combat began things would happen so fast that the commander and his staff would have to act with extreme rapidity if they could act at all. There would be no more maneuvers studied out and almost practiced in advance like ballets, which were commonly seen in the World War. Rather a continuous succession of contingencies, the rapid orientation of highly mobile units, with commanders hastening from one point to another across country, or flying over their zones. In brief, personal contact and, in effect, the instant setting up of all the echelons of command."

(16) LES IDÉES TACTIQUES EN FRANCE D'APRÈS LES DERNIÈRES MANOEUVRES. [Tactical thought in France as indicated by the last maneuvers.] Colonel Grasset

An abstract from "Journal Militaire Suisse" (Switzerland), August, 1934, covering its subject in conveniently brief form.

(17) LES MANOEUVRES FRANCAISES DU VALDAHON. [The French maneuvers at Valdahon.] General Barathier

An abstract from "Le Temps," 14 September, 1934. General Hering, director of the maneuvers, said at the final critique:

"In warfare of movement, for as long as the enemy's position is not accurately determined, the commander of an attacking division must give the commanders of his leading elements freedom to use their initiative, although at the same time closely limiting their missions. It is only when progress is halted that the division chief reasserts his full powers of command in order to mount an attack with the elements of the command he has held out for that purpose. Once successful in overcoming the enemy and resuming the advance, the subordinate commanders resume, in turn, their independence of action."

"A second point: In the offensive, the place of the division commander is forward at his advanced observation post. He watches the battle and can, at need, go rapidly to his commanders to give them oral orders. The orders themselves must be freed of all rigid form. Otherwise, it is impossible to take advantage of the fugitive opportunities of battle, and stamp the operations of open warfare with the mark of speed, which must characterize them."

(18) LA CONSTITUTION ORGANIQUE DU BATAILLON ET SON EMPLOI EN CAMPAGNE. [The composition of the battalion and its employment in battle.] General Clément-Grandcourt

An abstract of an article from "Revue Militaire Suisse," 8 August, 1934. It contains a short account of the development of the present Swiss type of infantry battalion and concludes with a discussion of needed changes in armament.

(19) L'EMPLOI DU PISTOLET MITRAILLEUR À LA GUERRE. [The use of the machine-pistol in war.]

Abstract of an article in "La France Militaire," 16 and 17 July, 1934. Forward echelons need a weapon of this kind to take the place of the machine gun, which has become more and more a long-range weapon. At closer quarters the automatic rifle is still of greatest value. But there is also the individual rifleman. Of two schools of thought one holds that the machine-pistol should be substituted for the rifle, and the other stands fast for the rifle. But why not give the machine-pistol to all men now equipped with the pistol?

(20) LA MOTORISATION DE L'ARMÉE ITALIENNE. [Motorization in the Italian Army.] Major Freguelli

An abstract of an article in "Revue Militaire Suisse," July, 1934, which is a discussion of the complexities of motorization and is based on a recent address by the Italian Minister of War. The problem and the approach to it differ little from our own.

(21) L'ATTACQUE ALLEMANDE PAR GAZ DU 22 AVRIL 1915. [The German gas attack, 22 April, 1915.] Hanslian

An abstract of an article in "Gasschutz und Luftschutz," April and September, 1934.

The attack was suggested by Professor Haber and ordered by General von Falkenhayn, then chief of the general staff. Von Falkenhayn had little faith in it and refused to give the Fourth Army an extra division to exploit a possible success. He failed to see that a new arm, used unexpectedly against an unprotected enemy might have a decisive result. In spite of his mistrust, he ordered the experiment to be made without delay.

The same blindness characterized the Allied high command, which had considerable warning, but disregarded it, and was consequently taken by surprise.

The effect of the gas attack was tremendous. But here again the German high command fell down completely.

The Ypres gas attack does not, even now, represent the true value of chemicals in war. In the future, however, they will doubtless be used in all attempts to break through a hostile line.

The Allied losses were greatly exaggerated for propaganda purposes.

The German high command made its first gas attack on too small a scale. It would have been better never to have made it at all than so half-heartedly.

The abstract concludes with the statement that this article has been received with great interest in Germany. The author has received many letters from those who played a role in this first chemical attack, notably, General von Tschischwitz, Chief of Staff of the XXIII Reserve Corps (right element of the attack), General von Hülsen, Chief of Staff of the Marine Corps attached to the Fourth Army, and General Peterson, who commanded the troops that actually delivered the attack.

December 1934

(22) PAGES D'HISTOIRE DE L'ARMÉE BELGE AU COURS DE LA GUERRE 1914-1918.—DEUX COUPS DE MAIN SUR CANOPUS TRENCH, 25 JUIN ET 28 JUILLET 1918. [History of the Belgian Army in the World War. Two raids on Canopus Trench, 25 June and 28 July, 1918.] Captain Rousseau

Personal experience monograph describing two small raids in trench warfare.

(23) LES COMBATS SOUS BOIS. [Fighting in woods.] (III) By "J.L.H." The third and concluding part of this article. This part concludes the illustrative problem begun in the second installment.

(24) LES POSSÉDABILITÉS ACTUELLES DE NOTRE AÉRONAUTIQUE MILITAIRE. [The present capabilities of Belgian air corps.] Lieut.-Colonel Hugon

This article consists of a resumé of Belgian air corps organization, armament, and capabilities, written for readers of other branches. Only items on which Belgian practice and thought are of particular interest follow.

"The role of an air corps officer can not be limited to that of mere piloting. Regarding observation units in particular, it is to be borne in mind that piloting is only a means, whereas the mission is of great importance, and the execution of that mission requires a thorough military knowledge. While keeping up his ability as a pilot, the officer must devote most of his energies to his real job.

"The difficulties of accurate observation are considerable, especially when ground troops are deployed. There is nothing to indicate a priori whether troops seen are hostile or friendly. During combat, it is, in general, impossible to distinguish between the two except by keeping oriented as to direction and position. Above 1500 feet altitude, uniforms indicate nothing.

"The attack of troops upon the ground is considered, in our regulations, to be a sacrifice mission." Nevertheless, it is an important and valuable means of harassment. "With a great roaring of propellers and a fine burst of enthusiasm, air formations will swoop upon the enemy to break his spirit, retard his advance, confuse him, disconnect his retreat, and cause panic among his tired out troops."

Ground fire, however, is to be respected. Low attacks can not be made without impunity.

"The low attack is very much the mode in Italy, England, France, America, and Russia, not only for attack against troops, but for bombardment."

The use of small, 5-pound, incendiary bombs in great numbers is deemed an effective means of bombardment of rear installations and cities.

The Germans now believe strongly in the use of attack aviation on the battlefield. "They envisage its use against units approaching the battlefield, in combat itself, in the pursuit, and in retirements. They recommend its use in the zone of the main effort. Their regulations state: 'The whole mass of available combat aviation place themselves in close contact with

the other arms. In order to achieve this end, aviation must be taken away, if necessary, from units that are not likely to contribute directly to the decision."

(25) RÈGLES D'EMPLOI DE L'OBSERVATION TERRESTRE DANS LES UNITÉS D'INFANTERIE. [Rules for terrain observation in infantry units.] Major Wanty

An outline of present methods and a program for instruction in observation.

(26) ANALYSE MATHÉMATIQUE DES RÈGLES DE TIR. [Mathematical analysis of methods of artillery fire.] Lieutenant de Moor

(27) RÉGLAGE D'UN TIR DE NUIT. [Conduct of night firing.] Lieutenant de Wergifosse

(28) ÉTUDE SUR LE CALCUL DE L'ALTÉRATION DES TRAJECTOIRES BALISTIQUES DUE AUX PERTURBATIONS DE LA LOI DE RÉFÉRENCE DE VARIATION DE POIDS DU MÈTRE CUBE D'AIR AVEC L'ALTITUDE. [A study of the alteration in ballistic trajectories caused by disturbances in the law concerning the variation with altitude of the weight of a cubic meter of air.] Lieutenant van Vyve

(29) LA GUERRA DECISIVA. [The decisive war.] Colonel Visconti-Prasca

A review of a recent Italian book that has been acclaimed as the Fascist doctrine of war.

The army is at the service of the national policy; consequently contacts between political and military personnel should be frequent. Studies of an international character should become of more importance to the army.

In tactics, the author pleads for accompanying batteries for infantry. More machine guns are necessary, but they would not solve the problem.

As regards personnel, even discipline must adapt itself to changing methods of warfare. More initiative is desirable, and more feeling of comradeship is desirable between the different arms and grades.

(30) L'AÉRONAUTIQUE ALLEMANDE PENDANT LA GUERRE. [German aviation during the World War.] v.Bülow

Taken from "Luftwehr," 1 September, 1934.

In August, 1914, the German air corps had 34 units and 450 men. At the armistice it had 306 units, 4,500 pilots, observers, machine-gunners. During the fall of 1914, 50 to 60 new planes were manufactured each month. By 1918, production had increased to 2,000. Speed had increased from 50 to 120 miles an hour.

There were also destroyed by bombs—

1 Russian cruiser
4 merchant ships
3 submarines
16 naval vessels of divers types.

And by antiaircraft fire—

1 dirigible
1537 airplanes.

Although the article does not distinguish between the two, the majority of the 1537 airplanes attributed to antiaircraft fire was the result of general fire from ground troops, rather than antiaircraft gun fire.

German aerial losses during the World War were:

Men: 6,800 killed, of which 3,031 were officers
7,350 wounded

1,372 missing.

Matériel: 2,128 in combat
1,000 missing

3,128 total.

40 dirigibles

546 captive balloons (471 by airplanes 75 by artillery).

Periodical Articles—Catalog

German performances in the air were:

Destroyed by: Army air corps units.....	7,425 planes
Navy air corps units.....	270 planes
Total.....	7,695 planes
Army air corps units.....	614 captive balloons
Navy air corps units.....	6 captive balloons
Total.....	620 captive balloons
Navy air corps units.....	2 dirigibles.

CANADIAN DEFENCE QUARTERLY (Canada)

April 1935

(1) FROM CIVILIANS TO COLONELS. Lieut.-Colonel Johnston (Prize Essay, 1934)
(2) THE INCREASING BURDEN OF ARMAMENTS. Stone and Popper
(3) A STEP TOWARDS MODERNIZATION. Major Burns
(4) EUROPE AND THE FAR EAST. General Smuts
(5) SIR JOHN MOORE AND THE CORUNNA CAMPAIGN. Major Scudamore
(6) WHEN EVENTS TAKE CHARGE. Flight Lieutenant Walker
(7) NOTES ON THE ORIGIN AND DERIVATION OF SOME MILITARY TERMS.

Brider

CAVALRY JOURNAL

January-February 1935

(1) THE LIGHT MACHINE GUN—WHERE DOES IT BELONG? Major Brown
(2) A JUSTIFICATION OF CAVALRY. Lieut.-Colonel Lentz
(3) SHOULD SERVICE MEN BE SOLDIERS? Colonel Williams
(4) MOTOR TRUCK OR COVERED WAGON? Major Blunt
(5) MODERN CAVALRY IN COMBINED MOUNTED AND DISMOUNTED ACTION. Major Trimble
(6) THE FRENCH METHOD OF CONDUCTING THE INFANTRY ATTACK, AS SEEN BY A GERMAN
(7) MODERN CAVALRY: TROOP LEADING; TACTICS. Lieut. General Brandt, German Army
(8) WILL IT HAPPEN AGAIN? (II) Major Boyd
(9) SOUTHWESTERN ENDURANCE RIDE, 1934. Captain Burgess
(10) THE BATTLE OF VILLERS-COTTERETS. Captain v.Schell, German Army

March-April 1935

(11) INFLUENCES OF MECHANIZATION, MOTORIZATION AND MACHINE GUNS ON THE HORSE CAVALRY REGIMENT'S TACTICS, ORGANIZATION, AND SUPPLY METHODS. Colonel Martin
(12) MODERN CAVALRY: ORGANIZATION. Lieut. General Brandt, German Army
(13) CROMWELL AS A CAVALRY LEADER. Colonel Bauer
(14) WILL IT HAPPEN AGAIN? (III) Major Boyd
(15) THE FALL MANEUVERS OF THE CAVALRY SCHOOL—1934. Lieut. Colonel Millikin

CHEMICAL WARFARE BULLETIN

January 1935

(1) THE 33RD DIVISION TRAINS FOR CHEMICAL WARFARE. Lieut. Colonel de Roulet
(2) BACTERIAL AND CHEMICAL WARFARE. SOME GERMAN VIEWS
(3) TO A FRESH CADRE OF CHEMICAL EXPERTS. Major General Leach
(4) THE ROLE OF THE SUPPLY DIVISION. Major Prentiss
(5) PROCEDURES IN PROTECTING CIVIL POPULATION (SWITZERLAND)

(6) THEORETICAL CALCULATION OF CONCENTRATIONS IN CHEMICAL WARFARE GAS CLOUDS. Englehard
(7) TACTICAL NOTES ON DEFENSE AGAINST GAS

COAST ARTILLERY JOURNAL

March-April 1935

(1) LEXINGTON AND CONCORD. Major Green
(2) UMPIRE SYSTEM OF THE GHQ-CPX, 1934. Brigadier General Humphrey
(3) HUMANITARIAN ASPECTS OF CHEMICAL WARFARE. Captain Sadler
(4) THE 202ND C.A. AT THE CENTURY OF PROGRESS. Colonel Dawes
(5) STATE USES OF THE NATIONAL GUARD
(6) ALL GOD'S CHILLUN AIN'T GOT WINGS. Arcades Ambo
(7) KEEPING TWO JUMPS AHEAD. Lieutenant Greene
(8) WILL IT HAPPEN AGAIN? Part III. Major Boyd
(9) A RECONNAISSANCE CAR KITCHEN AND MESS KIT STERILIZER.
Major Burns
(10) OFFICERS AND SERVICE SCHOOLS. Major Pendleton
(11) TRAINING FOR THE TROPHY. Captain Hudgins
(12) ANTIAIRCRAFT RECORDS. Lieutenant Townsend

ESERCITO E NAZIONE (Italy)

By First Lieutenant M.D. Taylor, Field Artillery

October 1934

(1) LA CULTURA MILITARE NEL QUADRO DELLA NAZIONE. [Military training in the national organization.] Baldini
(2) LE NAVI PORTAEREA. [Airplane carriers.] Accorsi
(3) FANTERIA: ESPRESSIONE DI POPOLO. [Infantry as the arm of popular expression.] Caprara
(4) PREPARAZIONE TOPOGRAFICA DEL TIRO DELLE ARTIGLIERIE. [Topographical preparation of fire for the artillery.] Calandriello

This study considers particularly the preparation of fire in mountainous and wooded country. In order to overcome difficulties in locating base pieces and in orientation, the author would construct a system (polygon) of elevated stations located trigonometrically as are the geodetic points of a triangulation system. Batteries could then tie in to these clearly marked stations.

(5) L'ARMA DEL GENIO IN TERRENO BOSCO. [Engineers in wooded country.] Cappuccini

This is a map exercise in the use of division engineers in a march to contact in wooded country. The engineers include units which we classify as signal troops.

(6) CINEMATOGRAFIA ADDESTRATIVA. [Training films.] Sardo
(7) I CELERI DEL DESERTO. [Desert light troops.] Cremasco

A praise of the camel units of northern Africa.

(8) SCHERMI E MATERIALE SENSIBILE PER FOTOGRAFETRIA TERRESTRE. [Filters and sensitive materials in photometry.] Bottai

November 1934

(9) L'ECONOMIA CORPORATIVA E LE NECESSITÀ DELLA GUERRA ODIERA. [The corporative state and the needs of modern war.] Caspary

The Italian corporative state adapts itself quickly and easily to the exigencies of war.

(10) IN TEMA DI GUERRA BATTERIOLOGICA. [Bacteria in warfare.] Magrone

The author does not believe that the wholesale spread of contagious diseases by artificial means is possible. Nor does he concede the possibility of developing new and terrible diseases in the laboratory which might be used by an unscrupulous enemy. However, the improbability of the use

of the bacteriological weapon does not warrant nations to disregard it completely. The danger should be studied constantly and measures of prevention prepared.

(11) MARCE INVERNALI IN ALTA MONTAGNA. [Winter marches in the mountains.] Bellani

(12) SVILUPPO E FORME DELL'ADDESTRAMENTO NELLE OPERAZIONI NOTTURNE. [Training in night operations.] Pecchio

Because of the special conditions incident to night operations, a special troops training program is required. This training should begin with the individual and extend through the echelons to the battalions.

(13) LA BATTAGLIA DI TURTUCAI (2-6 SETTEMBRE 1916). [The battle of Turtuca, 2-6 September, 1916.] di Fano

A description of the attack and capture of the Rumanian bridgehead at Turtuca by the Third Bulgarian Army, 2-6 September, 1916.

(14) IL PROBLEMA DEL VETTOVAGLIAMENTO IN GUERRA. [The problem of war-time food supply.] Vianelli

December 1934

(15) LA PREPARAZIONE MILITARE DEI GIOVANI NEGLI STATI E NELLA RUSSIA. [The military preparation of the youth of the United States and of Russia.] dell'Era

(16) AZIONE DI UNA AVANGUARDIA. [An advance guard action.] Borgnini

This article is a study of the action of an advance guard consisting of a battalion of infantry, a section of infantry cannon, and a group of light artillery. The advance guard is that of one of the two division columns advancing against a hostile force in position. The situation opens with the advance guards relieving the division reconnaissance detachment which has gained contact with the enemy covering forces. The subsequent action of the advance guard is the drawing in of these covering forces.

(17) PASSATO E PRESENTE DELLA CAVALLERIA FRANCESE. [Past and present of the French cavalry.] Zavattari

The article describes the pre-war organization of the French cavalry and its experiences in the war. It concludes with a description of post-war characteristics and doctrine.

(18) ELBA ED OSEL. [Elba and Osel.] Deambrosis

The author finds an analogy between the location of Elba off the coast of Italy and the Baltic Island, Osel, in the bay of Riga. He describes the German landing operations on Osel in October, 1917, by which the island was occupied within eight days by an infantry division and a cyclist brigade. There follows a geographic study of Elba and a consideration of the strategic importance of the island in operations against the Italian coast or against Corsica and Sardinia.

(19) L'ESERCITO BULGARO NELLA CAMPAGNA DEL 1915 CONTRO LA SERBIA. [The Bulgarian army in the 1915 campaign against Serbia.] Missana

(20) NASCITA E VITA DEI CICLISTI MILITARI. [Birth and life of the military cyclists.] Rodiani

Cyclists first appeared in the French Army, where in 1893 a Captain Gérard obtained the organization of a cyclist company. The purpose of the cyclist corps was to provide a mobile infantry support for cavalry, a mission conceived by Napoleon (see Frederic Massan: "Cavaliers de Napoléon"). By 1913, there were in the French Army ten groups, each of three platoons of three sections. Each group was assigned to a division of cavalry.

In Italy, from 1898 to 1904, the development of cyclist units followed that of the French. At the latter date, the organization of bersaglieri cyclist battalions was proposed and eventually adopted. With the increased size of the cyclist unit came an extension of its mission beyond that of reinforcement of cavalry. In Italy, the cyclists not only supported cavalry and infantry but were used independently. In the words of the Third Army commander after the battle of the Piave, "The bersaglieri cyclist

battalions were most useful in launching counterattacks when other reserves were not at hand and in confronting urgent tactical emergencies."

FIELD ARTILLERY JOURNAL

March-April 1935

- (1) THE DIVISION HOWITZERS AND THE CORPS ARTILLERY IN SUPPORT OF AN ATTACK. Major Wahl
- (2) SERVICE PRACTICE IN THE NATIONAL GUARD. Major Zundel
- (3) RESTITUTION BY TRACING PAPER INTERSECTION. Lieutenant Gillmore
- (4) MARSHAL TURENNE AND HIS GUNS AMONG THE DUNES. Pratt
- (5) COURSES AT THE FIELD ARTILLERY SCHOOL
- (6) THE 4TH GUARD FIELD ARTILLERY REGIMENT IN THE WORLD WAR. Captain North
- (7) THE MAINTENANCE OF FIELD ARTILLERY MOTORIZED UNITS AND THE CONTROL OF ITS MOTORIZED SUPPLY TRAINS. Major Wallace
- (8) THE GERMAN MILITARY DOCTRINE. By Colonel Altmayer, French Army; a digest by Major J.S. Wood

FIGHTING FORCES (Great Britain)

February 1935

- (1) II.— SOME LESSONS FROM THE AISNE. Lieut.-Colonel Burne
- (2) AN INTERNATIONAL POLICE FORCE AT LAST. Carter
- (3) LANGEMARCK, 16TH AUGUST, 1917. Captain Wynne

April 1935

- (4) BRITISH BAYONETS ON THE SAAR. Lieut.-Colonel Burne
- (5) THE TRIDENT IN THE WAR. Commander Evans
- (6) THE CAMPAIGN IN MESOPOTAMIA UP TO THE CAPTURE OF KUT EL AMARA. Lieut.-Colonel Allen
- (7) HELP FOR INFANTRY IN ATTACK. Colonel Kershaw, Retired

INFANTRY JOURNAL

March-April 1935

- (1) IN THE DARK. AN HISTORICAL MAP PROBLEM. Lieutenant Lanham
- (2) LEXINGTON AND CONCORD. Major Green
- (3) THE MARKING SYSTEM AT LEAVENWORTH. Lieut. Colonel Davis
- (4) ALL GOD'S CHILLUN AIN'T GOT WINGS. By Arcades Ambo (No other military problem of today is comparable in importance with that of getting the ablest men to the top in time of peace.)
- (5) HUMANITARIAN ASPECTS OF CHEMICAL WARFARE. Captain Sadtler
- (6) KEEPING TWO JUMPS AHEAD. Lieutenant Greene
- (7) STATE USES OF THE NATIONAL GUARD
- (8) WILL IT HAPPEN AGAIN? Part III. Major Boyd
- (9) NOTES ON NATIONAL GUARD TRAINING. Captain Thompson
- (10) THE EVOLUTION OF THE TANK WHEEL. Major Boltz
- (11) A BRIEF FOR OLDER GENERALS. Colonel Blech
- (12) THE OBJECTIVE. Major Pendleton

INFANTRY SCHOOL MAILING LIST

Volume IX—December 1934

- (1) TERRAIN COMPARTMENTS
- (2) SMALL PROBLEMS—INFANTRY
- (3) FAST TANKS
- (4) THE BATTLE OF GHELUVELT. (Historical map problem)
- (5) PLANES AND BULLETS

Periodical Articles—Catalog

- (6) FOREIGN THOUGHT ON THE LOW-FLYING ATTACK
- (7) INFANTRY VS. AIR ATTACKS. (Historical problems)
- (8) THE RAID ON ADAM HOUSE
- (9) NEGATIVE AERIAL INFORMATION
- (10) OPERATIONS OF COMPANY H 9TH INFANTRY, NOVEMBER 1918.

Captain O'Brien

JOURNAL OF THE ROYAL ARTILLERY (Great Britain)

April 1935

- (1) THE CRIMEA IN PERSPECTIVE. Lieut.-General MacMunn
- (2) OPERATIONS IN KURDISTAN. Major General Rowan-Robinson
- (3) EXTRACTS FROM "THE CONDUCT OF WAR."—VIII. GRAVELLOTTE—THE VICTORY. Marshal Foch. (Translated by Captain Kernan, U.S. Army)
- (4) "THE GERMAN REVOLUTION." Major Reynolds

JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION
(Great Britain)

February 1935

- (1) THE TREND OF ORGANIZATION IN THE ARMY. Colonel Macready
- (2) PASSCHENDAEL
- (3) THE ROYAL AIR FORCE TRAINING YEAR AT HOME. Wing Commander Maclean
- (4) STRATEGIC MOVEMENT BY RAIL IN 1914. Captain Napier
- (5) WARSHIP CONSTRUCTION UNDER THE NAVAL TREATIES. Prendergast
- (6) THE FUNCTIONS OF TANKS. Major Edwards
- (7) CYCLIST UNITS. Captain Allen
- (8) AVIATION IN THE SOVIET UNION. Flying-Officer Dunworth
- (9) THE DEVELOPMENT OF THE SUBMARINE. Captain Barry
- (10) THE STRIKING POWER OF THE ROYAL AIR FORCE. Squadron-Leader Rowley
- (11) THE DISARMAMENT DEADLOCK. Major Reynolds
- (12) JAPAN AND THE FAR EASTERN SITUATION. Captain Kennedy
- (13) THE INTERNATIONAL SITUATION:

Hungary and Yugoslavia; Italy and Abyssinia; War in the Chaco; An international police force; The naval conversations; The Saar; German rearmament; Franco-Italian relations; Events in Manchukuo.

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA
(Great Britain—India)

January 1935

- (1) CHINA TO-DAY AND TO-MORROW. By "Hsueh Sheng"
- (2) INFANTRY—THICK OR THIN. By "Hoplite"
- (3) A FEW THOUGHTS ON LIGHT INFANTRY AND MOUNTAIN WARFARE TRAINING. Captain Fripp
- (4) EMPIRE OR . . . Colonel Dickins
- (5) SEDGEMOOR. THE LAST BATTLE FOUGHT ON ENGLISH SOIL. Major Macdonald
- (6) THE EMPLOYMENT OF LIGHT TANKS WITH THE ARMY IN INDIA. Major Roberts

MARINE CORPS GAZETTE

February 1935

- (1) "MARK" 44. A SKETCH OF 44 YEARS OF RIFLE SHOOTING. Captain Wheeler
- (2) THE LANDING AND OCCUPATION OF SEAPORTS. Lieut.-Colonel Utley
- (3) THE EDIFICE OF LEADERSHIP. Lieutenant Pefley

(4) ARMORED CARS FOR THE FLEET MARINE FORCE. Lieutenant Brauer
(5) SUPPORTING THE FLEET MARINE FORCE
(6) DIPLOMATIC SPURS. OUR EXPERIENCES IN SANTO DOMINGO.
Lieut.-Colonel Miller

MILITARWISSENSCHAFTLICHE MITTEILUNGEN (Austria)

By Major F. During, Infantry

October 1934

(1) DIE ENTWICKLUNG DER ÖSTERREICHISCH-UNGARISCHEN WEHRMACHT SEIT DER ANNEXIONSKRISE 1908. [The development of the Austro-Hungarian forces since 1908.] Colonel Kispling

The object of this article, which has been reprinted from the "Berliner Monatshefte," is by means of authenticated facts and figures to disprove the reproach of increase of armaments in the last years before the World War, made against Austro-Hungary in literature dealing with the subject of war-guilt.

Figures show that in the opening years of the twentieth century Austro-Hungary dropped farther and farther back in the race of armaments of the Great Powers. The causes of this were financial, but still more political. The political causes were due chiefly to difficulties made by Hungary. Since the latter country had obtained almost complete autonomy in 1867, the Hungarian upper classes had worked systematically to do away with the Austro-Hungarian army and to form a separate Hungarian army. In order to gain concessions the Hungarian parliament took to refusing to grant the annual contingent of recruits and to budget the annual contributions toward the armed forces of the Empire. Hence it was quite impossible to hope for Hungary's consent to any increase in the Austro-Hungarian army, or in the annual contingent of recruits which remained for some decades at 103,000 for army and navy together. It turned out fortunately for the Austro-Hungarian army that its second line, in Hungary known as the Honved, had been made purely territorial, and for this portion of it the parliament at Budapest was generous enough. The Austrian half of the Empire raised a similar second-line army, known as the Landwehr; and a healthy rivalry arose between these two, which eventually resulted in both coming more and more to resemble regulars. By 1907 the Landwehr had started to get its own artillery, while the Honved got as far as producing cavalry divisions. Thus it came about that up to 1908 Austro-Hungary was working on no concrete program of developing its regular forces, although such a program, drawn up in 1903, was still in existence. This envisaged the reduction of service with the colors from three years to two, not because military circles favored such a decrease, but as a popular measure, and a concession to parliament in return for the sanctioning of most necessary increases. In 1907 this plan was thrashed out again. The Chief of Staff asked for heavy artillery for the field army, and an increase in the mountain artillery. The Austrian Minister for Defense asked for an increase of Landwehr mountain-troops, and an increase of peace establishment for the Landwehr company. The Honved Minister did the same as regards the Honved company. The Parliament would not agree. Thus Austro-Hungary's armed forces in 1908 were in no way, in strength or equipment, in accordance with the political requirements of the Empire.

In this dangerous state of complete standstill it very nearly happened at the beginning of 1909 that the Empire had to call upon its armed forces. Alarmed at the successful revolution by the Young Turks at Constantinople in July, 1908, which might well spread to Bosnia and Herzegovina, still nominally under the Sultan, but occupied by Austria for nearly thirty years, the Austro-Hungarian Government decided to announce the annexation of these two states. Protests on all sides were loud, but the loudest came from Serbia, which saw its dreams of a larger Serbia brought to

nought; and Montenegro seconded them. As it was evident that both Great Britain and Russia were aiding Serbia diplomatically, war parties in Belgrade and Cettinje got much support. Austria was compelled to take the military precaution of putting the commands adjacent to the frontier on a higher establishment, and of sending 15 battalions to the area south of the Save. Serbia answered by demanding autonomy for Bosnia and Herzegovina, and for itself a port on the Adriatic with a corridor leading thereto, to be taken from Austrian territory. Russia backed these demands. Austria was ready to declare war, when Russia, which had not yet recovered from the effects of the Japanese War, suddenly weakened, and counselled moderation. To the general relief of Europe at the end of March, 1909, Serbia withdrew its demands. The profits accruing to the Austro-Hungarian army out of this crisis were valuable increases in artillery and machine guns. On the other hand, 1910 and 1911 brought no improvement worth mentioning, as it was still not possible to get the Hungarian parliament to pass an increase in the annual contingent of recruits. At last, in July, 1912, after a struggle of eighteen months, a new Defense Act was passed, reducing service with the colors from three years to two, and raising the annual contingent by 50%. This arrangement had not taken effect when, in the middle of October, war broke out in the Balkans. Turkey was defeated in a surprisingly short time, and by 10 November Serbian troops had appeared on the Adriatic at Alessio, while the Montenegrins were pressing hard on Scutari. The formation of an Albanian state, which had been planned by Austro-Hungary and Italy, was thus seriously compromised. Serbia and Montenegro were ordered to withdraw, but relying on Russia's support, neither of them complied. As Russia strengthened its troops on the Galician frontier Austria followed suit, and also brought two corps in Bosnia and Dalmatia on to a war footing. After long negotiations between Vienna and St. Petersburg an agreement was reached, and again a war was saved. The partial mobilization had, however, sufficed to show that, even under the new Defense Act, peace establishments were inadequate. A further increase of 32,400 men in the yearly contingent was passed by Parliament in 1914, but had not taken effect when the World War broke out.

The author's defense of Austro-Hungary against the charge of war guilt through excessive preparation for war is complete.

(2) VOR ZWANZIG JAHREN: IM NORDÖSTLICHEN BOSNIEN. [Twenty years ago: In Northeast Bosnia.] Lieut.-Colonel Smola

(3) VOR ZWANZIG JAHREN: AN DER SAVEMÜNDUNG. [Twenty years ago: At the mouth of the Save.] Major General Klein

(4) DIE SCHLACHT AM ARGES (27. NOV. BIS 3. DEZ. 1916). EINE STRATEGISCHE STUDIE. [The battle at the Arges, 27 November to 3 December, 1916. A strategical study.] (I) Dr. Heréus

A most instructive strategical study of the positions, possibilities, movements, the decisions of General Presan, commanding the Rumanian army before Bucharest, and their execution during the last three days of November, 1916. The study is based upon the account given by General Pétain, Chief of the French Military Mission with the Rumanian Army, in his book, "The Drame Roumain, 1916-18." Of a very great achievement the article says: "The flank march of the 2/5 Rumanian Division through the patrols of Schmettow's Cavalry Corps and across the fronts of two advancing German infantry divisions is one of the most extraordinary undertakings in the history of war. In a march of 50 miles the division could not allow itself to be held up by the danger which threatened its flank throughout. The flank marches of Turenne at Ensisheim, of Frederick the Great at Leuthen, and of Radetzky from Verona on Mantua and from Milan on Pavia were secured against surprise by the terrain. Here there was no such security. For a parallel one would have to go back to the campaigns of Alexander and of Genghis Khan."

(5) DIE MILIZFRAGE IN DEUTSCHLAND VON 1848 BIS 1933. [The militia question in Germany from 1848 to 1933.] Colonel v. Dragoni

(6) SCHUTZ DES PROVIANTES GEGEN CHEMISCHE KRIEGSMITTEL. [The protection of food and forage against gas.] Lieut.-General Heyler
Meat, flour, hay, salt, sugar, and tea are all very susceptible to mustard gas and the arsenic compounds. The chief remedies are supply depots to be placed as far back as possible, supplies to be run up so quickly from the rear as to obviate any length of time of storage at the front, and tight and careful packing of all commodities, especially those mentioned, first in paper or in parchment and then in packing-cases with canvas covers or in double sacking, specially tightly woven.

November 1934

(7) DIE SCHLACHT AM ARGES (27. NOV. BIS 3. DEZ. 1916). EINE STRATEGISCHE STUDIE. [The battle at the Arges, 27 November to 3 December, 1916. A strategical study.] (II) Dr. Heréus

The theater of operation is the Wallachian plain, 100 square miles, lying west of Bucharest between the Transylvanian Alps or Southern Carpathians on the north, and the Danube on the south. Two rivers traversing this plain, the Alt and the Arges, may be taken as its western and eastern boundaries. The position on 23 November was that the Rumanians had lost two of the mountain passes in the north, necessitating their retirement in the west to the line of the Alt. They had one cavalry division and one infantry division in the south watching the Danube. The Rumanian forces thus occupied the arc of a semi-circle of which Bucharest is the center. The situation developed as follows: Rumanian G.H.Q. formed a striking force of three divisions. Before they had decided where this force should strike, they received news that on the morning of the 23d the Germans had started crossing the Danube, and were at a point 25 miles nearer the capital than the five divisions of the Rumanian First Army, which were facing the enemy in the mountains and along the Alt. An army group was now formed under General Presan consisting of the First Army, the three divisions of the striking force, and the Danube Defense Group.

General Presan had to decide whether he would (1) abandon Wallachia, and hence the capital (This his Russian allies advised.); or (2) retire all along the circumference of his front, and take up a defensive position in front of Bucharest; or (3) hold the enemy in the north and west, and strike heavily at the German Danube Army (Germans, Bulgarians, and Turks) advancing from the southwest.

General Presan decided on the third of these alternatives. In order to test the soundness of this decision it is necessary to investigate all the conditions and factors, and discover whether the plan had at least a reasonable chance of success; that it was not in the nature of a forlorn hope. This Dr. Heréus does, weighing strengths, working out distances and times, and comparing positions, the nature of the troops, their equipment and morale. He arrives at the conclusion that General Presan's decision was sound. It is all the more necessary to clear up this point, because the Rumanians eventually lost the battle at the Arges, and with it their capital. The deciding factor was that the German Danube Army, after being heavily struck, was saved by the arrival of another German army on its left, an arrival made possible by Schmettow's Cavalry Corps having been successful on 25 November in capturing the crossing of the lower Alt.

(8) FÜHRER UND STAB. [Commander and staff.] Major General Paschek

General Paschek deals with the General Staff only. He says much that is interesting, but little that is new, beyond the fact that larger staffs are now an unfortunate necessity, and that with these larger staffs the necessary complete unity within the staff will be more difficult to attain.

(9) DIE FLOTTENKONFERENZ 1934. [The Naval Conference, 1934.] Captain Sokol

The author writes briefly on the Washington Conference of 1922, and the Five Powers' Agreement, the London Conference of 1930, the Paris

Conference of 1931, and the London Conference of 1934, which was held as a preliminary of the 1935 conference. The article closes with a forecast of the questions with which the 1935 conference will have to deal.

(10) DIE MILITÄRISCHEN PROBLEME UNSERES KRIEGSBEGINNES. [The Austrian military problems at the beginning of the War.] General v. Horsetzky

This is a view of the book by the same name. General Horsetzky states that the historical development of the plans of operations of Austro-Hungary and of Germany against Russia, of Russia against the Central Powers, and of Austro-Hungary against Serbia have been brilliantly dealt with. There follow discussions of the operations against Serbia, 12 to 19 August, of Austro-Hungary's mobilization arrangements, of the introductory operations against Russia, of the first battles in Galicia and Poland, of the battle of Lemberg, and of the value of the Austro-Hungarian offensive between Vistula and Bug.

December 1934

(11) TIROLER KAISERJÄGER 1914/15 AM SAN. [The Tyrolean Imperial Jäger at the San.] General v. Fabini

This is a short regimental history of a regiment of which nine to twelve battalions (the latter being composite battalions) served as part of the 8th Division, XIV Corps, Fourth Army. The operations at the San have been chosen because of the hardest and most costly fighting of the year. On 15-16 October, 1914, the division managed to have 4½ battalions cross the San by ferrying, no bridging being possible, but the bridgehead was abandoned and the Austrians went on the defensive. From 20 to 26 October the river line was held against repeated Russian attacks. On 27 October the Austrians began to withdraw. Six months later, taking part in Mackensen's great breakthrough at Gorlice, the 8th Division was back at the San at precisely the same spot they had left in October. Heavy fighting took place here from 22 May to 3 June.

(12) MOLTKE—CONRAD. DIE BEIDEN GENERALSTABSCHÉFS DER VERBUNDENEN HÉERE ZU BEGINN DES WELTKRIEGES. [Moltke and Conrad at the beginning of the War.] Lieut.-Colonel Dettmer

Colonel Dettmer starts the article with a comparison of the situations in France and in Galicia in September, 1914, in both cases the armies of the Central Powers conducting a general retirement, in France without having fought a battle, in Galicia only after a hard struggle for success. He then asks, "Would the German armies have been withdrawn from the Marne if they had been under Conrad von Hötzendorf, instead of under Moltke, or would the battle have been fought out to its probably victorious end?" Colonel Dettmer runs over the main happenings in Galicia on the assumption that they are less well known than the events in France. He thinks that the disaster to the Austro-Hungarian Third Army on 27 August would have brought about a general retirement to behind the line of the San, if Moltke had been at the eastern front instead of Conrad. The method that the latter adopted of dealing with this new and adverse development was typical of the man. Instead of retiring his two victorious armies of the left, the First and Fourth, he sent the Fourth Army to the aid of the Third, a distance of about 45 miles, leaving only two corps to hold the Russians, to cover its rear, and to keep in touch with the right of the First Army. This was a strategic maneuver of great boldness. It was in accordance with Conrad's ideal of attacking, and, although it did not bring success, it enabled the Austrians to fight on until every prospect of success had disappeared.

To his own question the author replies, "I find only the answer 'The retreat on the Marne would not have taken place.' The battle would have been fought out." It will not escape the observant reader that Colonel Dettmer, in his answer, perhaps wisely, avoids using the words in his question "probably victorious."

(13) DENKRICHTE FÜHRUNG UND BEFEHLGEBUNG. [Clear thinking in leadership and clear wording of orders.] Major General Paschek

General Paschek develops on broad lines a method of thinking things out, but warns that this method should not become a scheme or plan. On the contrary it is intended to show that what is essential and of the greatest importance can always be discovered by clear and orderly thinking, and is then to be used as the governing idea for the giving of orders.

(14) DIE VOLLE EINGLIEDERUNG DER MILIZ IN DAS GEFÜGE DER WEHRMACHT ITALIENS. [The full incorporation of the militia into the framework of Italy's armed forces.] By "X. Y."

This is the story of a great achievement. To start with, the word "militia" is somewhat misleading, since it will be generally understood to mean a military force of lower category than the regular army, less well trained and less well equipped. The Blackshirts, or Fascists, to whom the reference is, were, however, not raised as a military, but as a political force. Their military training was scanty. They did not aim at being soldiers. Their duties were to do all those things for the new Fascist state which the State would not willingly ask the army or even the police to do, but for which uniformed bands of enthusiastic political supporters formed an admirable instrument. There was little love lost between the army and the Fascists ten years ago. "Nous avons changé tout cela." The successive stages by which this wonder has been brought to pass are:

(a) In 1924 the political army known as the Fascist Militia was nominated to be "a constituent of Italy's armed power."

(b) In 1925 Mussolini took over the portfolios of the Army, of the Navy, and (a new one) of the Air. He appointed three under-secretaries of state to assist, choosing a Fascist, Balbo, as under-secretary for the Air. He became "General Commandant" of the Fascist Militia.

(c) Blackshirt battalions were formed within the Fascist Militia, consisting only of soldiers who had completed their regular army service. These were exempted from their Army Reserve service by a ten years' engagement in the Blackshirts. These battalions, composed of reservists carefully picked, became *élite*-troops. They were attached, one or two, to every regular division, trained with that division, and were designated for tactical use as "storm battalions." The importance of this move, considering its effect upon the attitude of the army in general towards the militia, can hardly be over-estimated.

(d) At the end of 1930 a new Act introduced compulsory military training for all males capable of bearing arms, of the ages 19 and 20. This military training was to be carried out by the Fascist Militia. The Militia thus became intimately connected with the Navy and Air Force as well as with the Army.

(e) On 18 September, 1934, the draft of a new Act was published, which provides for "the military preparation of the nation." Its introductory axiom is "The activities of the citizen and the soldier are in the Fascist State inseparably connected." It calls for pre-military training for all boys "capable of defense" from the age of 8 to the age of 18, the same to be carried out under the Fascist Militia. In addition, all schools have to give 20 hours' training a year in military subjects for five years.

It orders also post-military training for all who have completed their service in the Army, Navy, or Air Force. The training will last ten years and be carried out principally on Sundays and holidays. The responsibility for this training lies with the Fascist Militia, although the programs are drawn up by the ministries concerned.

According to the anonymous writer of the article, it is this last measure which completes the complete fusion of the Militia formerly entirely and now mainly a political army, with the rest of Italy's armed forces.

(15) DAS PARISER LUFTMANÖVER 1934. [The French air maneuvers, 1934.] Colonel v. Xylander

The underlying idea of these maneuvers, in which a record number of 500 aeroplanes took part, was that the capital of the Red Forces, Paris, was attacked in a time of political tension, without the declaration of war, by the superior air forces of an eastern neighbor, Blue. The frontier

between Red and Blue ran south from a neutral state through Longuyon, Commercy, Langres, and Dôle, to Geneva, thus providing Blue with eight good French airdromes. Considering the bad weather experienced, flying performances were reported as "very good." The fact is emphasized that the new types of machines shown were only single seaters, while the mass of the air fleet was five years old and out of date. The successful attacks by Blue are represented as revealing a severe menace to France.

MILITAR-WOCHENBLATT (Germany)

By Major F. During, Infantry

4 December 1934

(1) **KRIEGSLEHREN.** [War lessons.] (III) General Wetzell, Retired In this third installment General Wetzell discusses the leader and his plan. It is imperative that a leader must have a plan of operation, which, based on the ultimate objective of complete destruction of the enemy, must include the concentration of armies, their advance, and offensive action.

A leader who is to command the military forces of a nation, should be selected in peace time, for it is not only his duty, but his right to have time to work his own plan of operations during peace and to have this plan promptly put into execution when war breaks out.

(2) **STAATSFÜHRUNG UND KRIEGSWESEN.** [Leadership of a nation and conduct of war.] Major Günther, Retired

According to the author, politics and conduct of war are closely associated. The aim of a war must dictate the political leadership of a nation, unless the military leader is also the political leader, which of course is only possible in a monarchy.

(3) **DIE MANÖVER DER 3. SCHWEIZERISCHEN DIVISION.** [The maneuver of the Swiss 3d Division.]

The object of the maneuver was—(a) to teach leaders to make decisions under difficult situations and in difficult terrain; (b) to clear up certain questions as to the organization of the Swiss Army.

(4) **PLAN DER 700 STUNDEN.** [Recruit training in 700 hours.]

(5) **MOTORISIERUNG IN ITALIEN.** [Motorization in Italy.]

Italy's boundaries on land are the Alps; therefore any future war will start in the mountains, and the problem of Italy's motorization and mechanization must take this fact into consideration. It is impossible for Italy to follow foreign leads, and Italy has to solve its own problem, in which she is very successful.

11 December 1934

(6) **KRIEGSLEHREN.** [War lessons.] (III) General Wetzell, Retired

The author again emphasizes that a military leader has a right to prepare his own plan in time of peace and that he should not be expected to execute a plan prepared by another. The elder Moltke in 1870 had his own plan, which he followed with an iron will until victory was won.

(7) **AUS GROSZER ZEIT VOR ZWANZIG JAHREN. DIE ÖSTERREICH-UNGARISCHEN ARMEEN IM HERBST 1914.** [Twenty years ago. The Austro-Hungarian Armies in the fall of 1914.]

(8) **DIE WEITERENTWICKLUNG DER WEHRSYSTEME.** [The development of the national defense system.] By "v.B."

General v. Seeckt recommended years ago a small elite army to fight wars. This recommendation caused much controversy—General Debenedey especially opposed this thought of General v. Seeckt. But in spite of this opposition, a booklet appeared recently in France, which advocates a large professional army. He states that noncommissioned officers and specialists can not be trained properly in a short time, nor will it be possible to equip and arm a large civilian army immediately after war has been declared, while a professional can have all of its war equipment ready when war comes. The English view is, that it is far better to have a small but fully

equipped, modern mechanized force on the field of battle, than large masses of infantry.

(9) ENGLISCHE SEE- UND LUFTMANÖVER. [British sea and air maneuvers.]

The object of the maneuver, which took place between 1-3 November, was to find out whether a hostile fleet could pass undiscovered through the Straits of Dover. The maneuver developed into three distinct phases, each with different results. On 1 November the British fleet was in the southern portion of the North Sea and was not discovered. By noon on 2 November contact was made with submarines of the fleet and with the cruisers by 3:00 PM, but all contact was made well to the north of the Straits. Contact was maintained almost continuously after dark. On 3 November the fleet was attacked from the air without much interference by the fleet's antiaircraft weapons. During this attack, one cruiser squadron made a bombing attack on the flying boat base at Galshot, but the hangars were empty and their occupants busy in attacking the fleet.

(10) OFFIZIER UND WIRTSCHAFTSWISSENSCHAFTEN. [Officers and industrial knowledge.] Captain Ruprecht

18 December 1934

(11) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. DIE ÖSTERREICH-UNGARISCHEN ARMEEN IM HERBST 1914. [Twenty years ago. The Austro-Hungarian Armies in the fall of 1914.]

(12) HISTORISCHE ENTWICKLUNG DER FLAK IM UND NACH DEM WELTKRIEG UND IHRE BEDEUTUNG IM ZUKUNFTSKRIEG. [Historical development of antiaircraft cannon during and after the War and its importance in a future war.] Lieutenant Peres, Reserve

After a technical discussion of the different antiaircraft cannons, their uses during the War, and the experiments of the nations with more modern weapons, the author concludes that to be successful in antiaircraft defenses it must consist of attack, defense, and protection, viz.: attack by pursuit planes, defense by ground cannons, and protection by civilian and military personnel.

(13) DIE OPERATIVE VERWENDUNG DER DEUTSCHEN KAVALLERIE IM WELTKRIEG 1914-1918. [The operative employment of the German cavalry during the War.]

(14) "LISTE KOMMANDO" UND "LISTE MOBILMACHUNG" IM OFFIZIER-KORPS DES ITALIENISCHEN HEERES. [Command list and mobilization list of the Italian officer corps.]

(15) ORGANISATIONSABSICHTEN FÜR DAS BRITISCHE LANDHEER. [Contemplated organization of the British Army.] Colonel v.Xylander

25 December 1935

(16) KRIEGSLEHREN. [War lessons.] (IV) General Wetzell, Retired (See abstract, page 61.)

(17) DER WINTERFELDZUG. [War in winter.] (I) Colonel v.Loebell
The author describes in this article the difficulties which affect a plan of operation in winter, but does not give ways and means of how to overcome these difficulties.

(18) LUFTANGRiffe UND FLUGABWEHRTRUPPEN. [Aerial attacks and antiaircraft troops.] By "W.P."

According to foreign reports, modern means of antiaircraft defenses increase the danger for airplanes, and future aerial attacks will be disastrous for the attacker. On the other hand, the increased speed of airplanes, and their possibility of reaching higher altitudes, etc., will add to the difficulties of ground defenses. Airplanes flying at very low altitudes have the advantage that a sound apparatus can not pick them up, and therefore surprise is possible, nor will it be possible for pursuit planes to attack low-flying bombers. The disadvantages are: difficult orientation and the danger of being hit by the rifle or machine-gun fire of ground forces. Airplanes flying above 15,000 feet, or above the clouds are also

hard to pick up, and the effect of antiaircraft artillery in such cases is very low. But in order to have a successful bombing attack, planes must come down from the high altitude, orient themselves, and prepare for the attack, which places them again in range of the antiaircraft artillery. If objectives are well protected by antiaircraft artillery, an aerial attack on such objective is a very difficult problem and the only solution is a diving attack. This demands, however, special planes and specially trained pilots. The defense against such an attack is still an unsolved problem.

(19) DER USA.-GENERALSTABSCHEF ÜBER DIE ORGANISATION DER AMERIKANISCHEN ARMEE. [General MacArthur's report on the organization of the American army.] Dr. Lufft

(20) NEUE GEFECHTSVORSCHRIFT FÜR DIE RUSSISCHE KAVALLERIE. [New combat regulations for the Russian cavalry.]

The new regulations cover the basic principles of cavalry attacks, the formation of cavalry regiments down to the platoon, cavalry reconnaissance, march and camps. "Mounted attacks are only possible of success, if executed under most favorable conditions." This differs from the old regulations, which state that the best way for cavalry to attack is to charge.

Artillery support in a cavalry attack is most essential. The accompanying artillery (platoon with each regiment) must advance to the front line and from there open fire on armored cars and tanks. This fire must be withheld, however, until the enemy is within 1500 yards. The division artillery is only permitted to engage enemy artillery when live targets are absent or when a surprise fire is possible. When on a reconnaissance mission, patrols, either mounted or motorized, of a strength from 15 to 20 men, are sent out to a distance of 15 to 20 miles. Patrols can only offer combat when there is danger of the patrol being surrounded or when there is a possibility of destroying small units of the enemy.

(21) DER HEERESAUSHALT DER TSCHECHOSLOWAKEI. [The military budget of Czechoslovakia.] By "v.K."

4 January 1935

(22) KRIEGSLEHREN. [War lessons.] (IV) General Wetzell, Retired (See abstract, page 61.)

(23) WARUM KÖNNEN WIR NICHT TARNEN? [Why can't we camouflage?] Captain Scherff

A reply to the article of same title (see RML No. 56, page 116).

(24) DER WINTERFELDZUG. [War in winter.] (II) Colonel v.Loebell, Retired

(25) WELCHES IST DIE HAUPTWAFFE DER GEGENWART? [Which is the most important arm at present?] Colonel Immanuel, Retired

According to the author, the infantry is the most important individual arm, but in the cooperation between infantry, artillery, and cavalry lies strength. Two new arms appeared during the War, viz: the air arm and the tank. In addition, hand grenades, minenwerfers, gas, smoke, etc., were also introduced during the War. Motorization affects all arms. We now have five instead of three arms, viz.: infantry, cavalry, artillery, air arm, and tanks.

The World War has proven that the infantry is the queen of battle. It is only the infantry which can hold what it gained. The cavalry could have been dispensed with during the war, and today it is practically replaced by motors, but it still has a role to fulfill and its mobility in any kind of terrain is important.

The artillery has undergone many developments. For its own defense it has machine guns, auto weapons, and antiaircraft guns. Accompanying guns follow the infantry into the front line. The field pieces, howitzer, and larger caliber guns fight in close cooperation with the infantry. Marshal Petain considers the artillery as the decisive arm of the future. The general view is that the air arm is the most important arm of all.

The tank has been greatly developed, and its speed and capabilities makes it a weapon of great importance, but one must never forget that airplanes and tanks are piloted and steered by men against men.

Each arm is important, but in the cooperation of all lies strength.

(26) MASZNAHMEN BEI STÖRUNG VON TRUPPENVERSCHIEBUNGEN AUF EISENBAHNEN. [How to correct interruption in traffic during troop movements on railroads.] Major Kretzschmann, Retired

During the early part of February, 1915, the German XXI Corps was moved via rail from the west front, and three other corps from the interior of Germany, to the eastern theater of operations. Four railroad lines were used for this purpose. At 8:00 PM, 3 February, 1915, a collision occurred near Konitz, which resulted in both tracks between Neustetten—Konitz being closed for traffic. The officer in charge of transportation was of the opinion that the delay would not be longer than 2 hours and ordered all trains in rear to be held up. At the same time the officer in charge of transportation of the adjacent line was requested to hold up all trains for a short time. Instead of two hours, it took fully five hours before the line was opened. The result of this was that all trains in rear as far as the entraining point on the Western Front were held as late as 18 hours. In a future war, where aerial attacks on trains or demolition of rails by aerial bombing must be expected, measures must be taken to prevent an interruption as cited above.

The mass of the troops must be kept moving. Experience has proven that a re-routing of part of the trains is the best way to overcome interruptions. A detailed plan should be worked out beforehand, taking care of any possible destruction of rails. Only a few trains should ever be held up until repairs have been effected; the large majority must continue moving over a different route. In case this re-routing is not possible, it will be best to side-track a sufficient number of trains in order to have the remainder continue to move. For instance, repairs will take 2 hours, and one train passes every 30 minutes; the first five trains should be side-tracked, while from the sixth train on the movement continues. The five side-tracked trains can continue to move at odd intervals or be placed at the rear of the entire movement.

11 January 1935

(27) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. OPERATIVE BETRACH-
TUNGEN ZUM KRIEGSJAHR 1914. [Twenty years ago. An operative dis-
cussion of 1914.] v.Schäfer

After the first five months of war the German as well as the French plans of advance had resulted in stabilized warfare. Only a tactical breakthrough could open the war for renewed operations in a war of movement. Napoleon has said that "tactics change continuously, but strategy never," and according to Clausewitz, "it is imperative to be strong everywhere, especially at the decisive place." Victory is possible, even though one is numerically weaker than the enemy; this weakness must be offset, however, in the armament and morale of the troops and in the art of leadership.

The Schlieffen plan provided for a numerical superiority, and when he wrote his plan he had in mind the statement of Frederick the Great that, "It is better to sacrifice a province than to lose a war." Schlieffen was willing to sacrifice Alsace in order to get a numerical superiority at the right wing. When the French entered Upper Alsace, Moltke used 3½ corps there; this was supposed to be only temporary, but the strength which was required for the main decisive point was lost.

According to the author, it would have been better to have used the original numerical superiority in the west to clear the situation there; he gives three reasons why this was not done.

(a) The Germans overestimated their first successes. It is only human for commanders to report their victories in the most favorable light; therefore general headquarters should have considered these reports with a little reservation. In 1870 a report of having taken several thousand prisoners was important, but in 1914 the same number of prisoners was only a "drop in the bucket."

(b) The Germans underestimated the enemy's and overestimated their own strength.

(c) Germany failed to contain large enemy forces with weaker forces. And in a war of movement such procedure is faulty, as freedom of movement becomes lost.

It is questionable whether it was possible to prevent stabilized warfare after the first daring advances in the west were unsuccessful. Count Schlieffen was right when he said that it must be a short war, based on fast movements and attacks, for in a long war the decision will rest with the nation having the most troops.

(28) ZUM KAPITEL: "ZUSAMMENWIRKEN VERBÜNDETER HEERESLEITUNGEN." [Cooperation between allied general headquarters.]

A short article pertaining to the difference of opinion between the French and English views about the battle of the Marne.

(29) "ERKUNDUNG!"—"BEOBACHTUNG!" [Reconnaissance and observation.] Major Kaiser, Retired

The author states that artillery reconnaissance and observation go hand in hand, but reconnaissance has first priority. In a war of movement much of the necessary reconnaissance has to be done by the artillery itself, necessitating careful training for this in peace time.

(30) NEUZEITLICHE KAMPFWAGENABWEHR AUF DEM GEFECHTSFELD. [Modern antitank defense.]

The author suggests that in addition to at least thirty antitank guns for the defense of a division sector, each antitank defense company should have one platoon of extra heavy machine guns. The machine guns should open fire on light tanks, while the antitank guns should take the medium and heavy tanks under fire.

(31) TAKTISCHE AUSBILDUNG DER INFANERIE IN DER RUSSISCHEN ARMEE. [Tactical training of the Russian infantry.]

(32) AUFKLÄRUNG DURCH WINDMÜHLENFLUGZEUGE IN DER ENGLISCHEN ARMEE. [Reconnaissance by autogiros in the British Army.] Captain Conn, German Navy, Retired

The author gives a technical description of the autogiro, which is being used in England for reconnaissance, artillery observation, and transportation for general staff officers.

18 January 1935

(33) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. SCHLACHT BEI SOISSONS, 12. UND 13. JANUAR 1915. [Twenty years ago. Battle of Soissons, 12 and 13 January, 1915.] General v.Berendt

(34) DIE ERFAHRUNGEN UND WANDLUNGEN DER TAKTISCHEN KAMPFANSCHAUUNGEN IM KRIEGSAJAHR 1914. [Experiences and changes of tactical views in 1914.] General Reinicke, Retired

War can not be taught by training regulations alone; the personal experiences of officers and men related to young soldiers are most effective. For that reason, no officer or man having war experiences, should ever be forced to leave the service. It was considered a proper procedure for a battalion to have three companies in the front line and to keep one company in reserve. During the first months of war, this system was adhered to, irrespective of existing situations or conditions. Artillery preparation for an infantry attack was unknown at the beginning of the War. The infantry was ignorant about artillery matters, and it often happened that artillery was not ready at the time when the infantry was ordered to attack. Main efforts by infantry and artillery were unknown.

Officers should be taught how to read maps of foreign countries.

(35) DAS 1. GARDE-REGIMENT ZU FUSS IM WELTKRIEG 1914-18. [The 1st Garde Regiment in the World War, 1914-18.]

(36) DIE ENTSCHEIDENDE FÜHRERROMANTIK. [The disappearing romance of leadership.] Lieut.-General Marx, Retired

General Marx disagrees with the maxim, that leaders of lower units should be told what to do, but not how to it. He states that leaders of

lower units say that they know the situation much better than does the higher commander and that leaders of lower units are usually "smarter" than commanders of larger units. There is a certain feeling in all armies that the higher commanders and their staffs are the real enemy. This is very dangerous, because as a rule leaders of lower units think that they are infallible. The best thing for young officers to do is to remember during peace time maneuvers, tactical rides, etc., that "obedience of orders is the beginning of wisdom."

(37) RÜSTUNGSBESTREBUNGEN DER GROSZSEEMÄCHTE. [Race for naval supremacy.] Captain v. Waldeyer-Hartz, German Navy, Retired

(38) ZUR PSYCHOLOGIE FRANZÖSISCHER FÜHRUNG. [The psychology of French leadership.] Colonel v. Xylander, Retired

A discussion of the book, "Le 3e Corps d'Armée de Charleroi à la Marne. Essai de psychologie militaire. Les combattants et le commandement," by General Gabriel Rouquerol.

(39) WELTKRIEG UND WIRTSCHAFTSENTWICKLUNG. [World War and development of industries.] Captain Ruprecht, Retired

25 January 1935

(40) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. ERFAHRUNGEN ÜBER DIE VERWENDUNG DER ARTILLERIE IM ERSTEN KRIEGSAJAHR. [Twenty years ago. The artillery during the first year of the War.] (I) Lieut.-General Marx, Retired. (See abstract, page 58.)

(41) SEEGEWALT IN DER GESCHICHTE. [Sea power in history.] Vice Admiral Meurer, Retired

The author intends to show that the fate of nations, which have sea boundaries, is dependent on their sea power. He proves this by citing historical examples from the time when King Darius crossed the Hellespont in 492 B.C. to 31 B.C. when at Aktium, Octavian and Antonius fought a sea battle to see whether Rome or Alexandria was to rule the world.

(42) DIE PLANÜBUNG. [Map exercises.]

The unknown author gives a detailed explanation as to how a map exercise should be conducted.

(43) ENGLISCHE UND AMERIKANISCHE LUFTENTWICKLUNG. [British and American airplane development.]

(44) DIE NEUORGANISATION DER FINNISCHEN WEHRMACHT NACH DEM WEHRGESETZ 1932. [The new organization of the Finnish defense troops.]

(45) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. ERFAHRUNGEN ÜBER DIE VERWENDUNG DER ARTILLERIE IM ERSTEN KRIEGSAJAHR. [Twenty years ago. The artillery during the first year of the War.] (II) Lieut.-General Marx, Retired (See abstract, page 58.)

(46) ORTSCHAFTEN IM BEWEGUNGSKRIEG 1914. [Villages during the war of movement in 1914.] (I)

(47) GEDÄNKEN ZUR KAMPFTAKTIK DER INFANERIE. [Infantry combat tactics.] Major Gollnick

(48) KAMPFWEISE LEICHT BEWEGLICHER KRÄFTE. [Methods of combat of light and mobile units.] Major Crisolli (See abstract, page 55.)

(49) NEUES VON DER ITALIENISCHEN LUFTARMEE. [The Italian Air Corps.]

On 28 October, 1934, a school for air officers was opened in Rome. All officers of the air corps have to take two courses at this school—once before receiving their majority and again before being promoted to a colonelcy. The length of the first course is two years and that of the second course one year. Italy intends to inaugurate air lines in the spring of 1935, from Rome to Paris (three hours), and from Rome to London (four hours). General Valle, Chief of the Air Corps, states that within a few years planes will fly from Paris to New York in eight hours, flying at an altitude of about 30,000 feet and at speed of 625 miles per hour.

(50) TAKTISCHE AUFGABEN NR. 1. [Tactical map problem No. 1.] Orders and action of the regimental commander for the advance of his regiment.

11 February 1935

(51) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. KRIEGSERFAHRUNGEN IN DER VERWENDUNG MODERNER KAVALLERIE. [Twenty years ago. War experiences in the employment of modern cavalry.] (I) General v.Poseck, Retired (See abstract, page 39.)

(52) ORTSCHAFTEN IM BEWEGUNGSKRIEG 1914. WAS KÖNNEN WIR AUCH HEUTE DARAUS LERNEN? [Villages in the war of movement, 1914.] (II)

The unknown author discusses whether it is better to take a village by frontal attack or by an enveloping movement, and concludes that at night a village can be enveloped, provided the area around the village is free of the enemy. To undertake an envelopment during the day is hazardous, and to have the artillery take a village under fire during a war of movement is too time consuming and takes too much ammunition. The best solution would be to have the infantry attack the village frontally.

(53) LLOYD GEORGE IM WELTKRIEGE. [Lloyd George during the War.]

(I)

A discussion of the action of Lloyd George during the War, based on the book, "War Memoirs of David Lloyd George."

(54) NEUZEITLICHE KAMPPFWAGENABWEHR AUF DEM GEFECHTSFELD. [Modern antitank defense.] v.Lossov

A reply to the article of the same title in "Militär-Wochenblatt" of 11 January, 1935. The author states that thirty antitank guns for a division is not sufficient, but recommends forty guns. The author also disagrees with the suggestion that each antitank defense company should have a platoon of super-heavy machine guns. He recommends that the main mission of antitank defense troops is to obstruct the view of the tank drivers, and this can be done by having the antitank guns fire smoke at the approaching enemy tanks, providing, of course, that the weather is favorable for such action.

(55) DER FRANZÖSISCHE WEHRMACHTSHAUSHALT 1935. [The French military budget for 1935.]

(56) TAKTISCHE AUFGABE NR. 1. A. BESPRECHUNG. [Tactical map problem No. 1.]

A discussion of the orders and actions of the regimental commander for the advance of his regiment.

(57) TAKTISCHE AUFGABE NR. 2. [Tactical map problem No. 2.]

Required: the decisions and orders of the advance guard commander during a meeting engagement.

18 February 1935

(58) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. KRIEGSERFAHRUNGEN IN DER VERWENDUNG MODERNER KAVALLERIE. [Twenty years ago. War experiences in the employment of modern cavalry.] (II) General v.Poseck, Retired (See abstract, page 39.)

(59) LLOYD GEORGE IM WELTKRIEGE. [Lloyd George during the War.] (II)

(60) WECHSEL IN DER FRANZÖSISCHEN HÖCHSTEN MILITÄRISCHEN KOMMANDOSTELLE, DEREN NEUGLIEDERUNG EINSCHLIESZLICH DES OBERSTEN KRIEGSSTATES. [Changes in the high command of the French Army and the new organization to include the War Council.]

The Chief of Staff of the French Army becomes commander-in-chief of all armed forces during a time of war. The Deputy Chief of Staff becomes Chief of Staff and remains at the War Department. The War Council consists of the Secretary of War, Chief of Staff, Marshal of France (France has two at present, Petain and d'Esperey); one general below the age of 70 years, and twelve generals, who in time of war become commanders of groups of armies and of armies.

(61) AUS DEM CHACOFELDZUG. PICUIBA—CARANDAITI, AUGUST / SEPTEMBER 1934. [From the Chaco War. Picuiba—Carandaiti, August-September, 1934.]

The author describes the action at Picuiba and Carandaiti.

(62) TAKTISCHE AUFGABE NR. 2. [Tactical map problem No. 2.] Solution and discussion of the decision and action of the advance guard commander.

(63) TAKTISCHE AUFGABE NR. 3. [Tactical map problem No. 3.] Orders for the security detachments for a regiment during a 2-hours' rest.

25 February 1935

(64) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. ZUR WINTERSCHLACHT IN MASUREN. [Twenty years ago. The winter battles at the Masurian Lakes.] v.Schäfer

The battle is of importance because it was the first attempt to change from stabilized warfare back to a war of movement and because it was a breakthrough and envelopment having as objective the destruction of the enveloped Russian flank. It was hoped to bring the war in the east to an end with this operation, but while the battle of the Masurian Lakes was successful, it did not end the war in the east. The main reason for this was that this area was too large for the number of troops employed and that the weather was unfavorable, which delayed the arrival of the artillery, etc.

(65) LLOYD GEORGE IM WELTKRIEGE. [Lloyd George during the War.] (III)

(66) SCHIEDSRICHTERDIENST BEI LUFTMANÖVERN. [Umpires at air maneuvers.] By "W.P."

The duties of umpires at air maneuvers are somewhat difficult. They can not take the same active part here, as at terrestrial maneuvers, and this often results in faulty views of the capabilities of fliers and antiaircraft troops. Reconnaissance planes, when attacked by enemy aircraft and ruled out, should not be permitted to send in reports; the reason for this is obvious. Due to the fact that the umpire on the ground can not follow the action in the air, it is best to permit only a small part of the reports which are sent by radio to reach headquarters for which they are intended.

In order to properly umpire a fight between pursuit planes it is suggested to furnish the umpires with moving picture cameras. It is true, before the film can be developed the fliers have landed, but the showing of the picture to all fliers who participated is very instructional. In order to determine the effectiveness of antiaircraft fire it is suggested that planes carrying umpires fly in the space or area which is controlled by the antiaircraft fire. The umpire can easily rule out any planes which pass through this space. The umpires in the air will also observe whether the antiaircraft batteries are properly camouflaged or whether they can be easily recognized from the air.

(67) TAKTISCHE AUFGABE NR. 3. [Tactical map problem No. 3.] Solution and discussion.

(68) TAKTISCHE AUFGABE NR. 4. [Tactical map problem No. 4.] Decision of the advance guard commander.

4 March 1935

(69) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. ERFAHRUNG ÜBER DIE VERWENDUNG DER PIONIERWAFFE IM ERSTEN WELTKRIEGSJAHR 1914 IN OST UND WEST. [Twenty years ago. Experiences from the employment of engineers during 1914.] Major General Königsdorfer

After discussing the organization of the engineer troops before and at the beginning of the War, General Königsdorfer states that the training of the engineers during peace time had been thorough as far as their work for a war of movement was concerned, but they knew little or nothing about stabilized war. The late war has proven that engineers must be motorized in order to be at a place on time when they are needed. The author then discusses the armament of the engineers and closes with the word that the engineers stood the test of 1914.

Periodical Articles—Catalog

(70) DIE AUFGABEN UNSERER KRIEGSGESCHICHTLICHEN FORSCHUNG. [The problems of historical research.] Lieut.-General Marx, Retired

General Marx compares military literature written after the War of 1870-71 to that written after the last war and finds that the former tried to picture the war as it actually was, while the latter tries to picture it as it should have been. Not even the smallest detail was overlooked in military writings after 1870; today we find little of that. Most writers consider only the larger operation. And this is perhaps the reason, while at service schools the operations of the Marne battle and of Tannenberg are presented in the lecture rooms. It should be remembered that the minds of young officers are not receptive for the larger operations. It is far better for them to know what routes carrying parties have to take and where dead spaces are. Too many young officers leave the service schools thinking they are accomplished strategists.

(71) DER CHACOKRIEG IN DER ZWEITEN HÄLFTE DES JAHRES 1934. [The Chaco War during the second half of 1934.]

(72) KAMPFWAGEN IM INFANTERIEGEFECHT. [Tanks in an infantry fight.]

The objectives of tanks are not the enemy infantry but the artillery, reserves, observation posts, and machine-gun nests. When the infantry is within 300 yards of the enemy lines, the tanks must pass through the infantry and thereby assist the latter. A tank attack first meets the outpost, and it would be advantageous for the defender, if the troops on outpost had some antitank weapon with which at least to combat the light tanks. Of course tanks can combat machine guns, but it would be difficult for the tank to combat many well-covered sharpshooters, provided with armor-piercing bullets. It takes the tank only a few minutes to break through the outpost line and to reach the main line of resistance; therefore an efficient system of communication is necessary. Airplanes are well suited for this. Besides notifying the main line of resistance of the approach of tanks, they can at the same time direct the artillery fire on the tanks. The best defense against tanks are the super-machine gun and light artillery pieces. In some armies from one to three batteries are attached to infantry regiments for antitank defense.

(73) KRIEGFÜHRUNG UND PFERDEZUCHT. [War and breeding of horses.] Major Buhle, Retired

(74) TAKTISCHE AUFGABE NR. 4. [Tactical map problem No. 4.] Solution and discussion of the decision of the advance guard commander.

(75) TAKTISCHE AUFGABE NR. 5. [Tactical map problem No. 5.] Action and orders of the battalion commander preparatory to an attack.

MILITARY ENGINEER

March-April 1935

(1) THE SAN FRANCISCO-OAKLAND BAY BRIDGE. Tudor
(2) EARTH SCIENCE AND MILITARY EDUCATION. Patton
(3) THE CAMPAIGNS OF JOSHUA. First Lieutenant Coe
(4) THE INFANTRY SCHOOL. Captain Wharton
(5) WORLD'S FAIR TRANSPORTATION PROBLEMS. Major Irvine
(6) CONCRETE IN THE MONTGOMERY ISLAND LOCKS. First Lieutenant

Potter

(7) THE ECONOMIC COST OF WAR. (Editorial)
(8) SWISS SAPPERS IN A FLOODWATER EMERGENCY. Lieutenant Son-deregger, Swiss Army
(9) SURFACE REGULATION AT KEOKUK. Lieut.-Colonel Hall
(10) CIVILIAN NOTES ON LEADERSHIP. Page
(11) INTRODUCING A NEW LEE. Captain Colby
(12) STRATEGIC MINERAL SUPPLIES. 4. CHROMIUM. Major Roush

MILITARY SURGEON

March 1935

- (1) HISTORY OF THE MEDICAL AND DOMICILIARY CARE OF VETERANS. Ijams and Matz
- (2) TYPHOID FEVER IN THE VACCINATED. Lieut.-Colonel Coburn, Jr., Major Ostrander, and Captain Gillespie
- (3) THE MEDICAL DEPARTMENTS OF THE SHIPS OF DEWEY'S SQUADRON IN THE BATTLE OF MANILA BAY. Commander Roddis

April 1935

- (4) THE MISSION OF THE SANITARY CORPS (SANITATION SECTION) IN WAR TIME. Major Tobey
- (5) THE CIVILIAN CONSERVATION CORPS AS VIEWED BY A DISTRICT SURGEON. Lieut. Colonel Michie
- (6) THE CIVILIAN DOCTOR'S PART IN A NATIONAL MILITARY EMERGENCY. McBride

NAVAL INSTITUTE PROCEEDINGS

March 1935

- (1) RECRUITS AND RATINGS. Ensign Lane
- (2) THE U.S.S. "FULTON THE FIRST." Lieutenant Gurley
- (3) THE NEW YORK PRISON SHIPS IN THE AMERICAN REVOLUTION. Commander Roddis
- (4) THE EFFECT OF DEPTH CHARGES ON SUBMARINES. Lieut. Commander Doughty, Jr.
- (5) INTERPRETING BAROMETRIC PRESSURE CHANGES. Lieutenant Raftery
- (6) THE NAVY'S PART IN MODERN AÉROLOGICAL DEVELOPMENTS. Lieutenant O'Brien

April 1935

- (7) BEYOND THE NAVAL TREATIES. (Prize essay, 1935) Lieut. Commander Talbot
- (8) THE GOLDEN GATE AND SAN FRANCISCO BAY BRIDGES. Captain Kearney (Retired)
- (9) THE CROSSING SITUATION. Lieutenant Farwell
- (10) DOCUMENTS ON NAVAL WAR WITH FRANCE. Captain Knox (Retired)
- (11) HISTORIC SHIPS OF THE NAVY, "CONSTELLATION." Nesser

PIONIERE (Germany)

By First Lieutenant H.D. Vogel, Corps of Engineers

November 1934

- (1) HEERFÜHRER ÜBER BEFESTIGUNGEN. [Army leaders on fortifications.]
Contained herein are brief abstracts from the writings of Frederick the Great, Clausewitz, Napoleon I, Moltke, and Count Schlieffen.
- (2) DIE FRANZÖSISCHEN SÜDOSTBEFESTIGUNGEN 1914. [The French southeastern fortifications of 1914.]

This article opens with a brief history of the fortifications of Verdun, Toul, Nancy, Manonviller, Epinal, and Belfort, dating from the War of 1870 to the opening of World War hostilities. It then proceeds to describe the French plans for defense and the effects of the German assaults of 1914. It closes in a manner characteristic of the excellent publication in which it appears, namely, with a brief summary of important points brought forth. These points are as follows:

(a) Fortifications must be laid out in conformance with the plan of operations of the General Staff. In this way only can they be made to work in exact conjunction with the armies of the field. They

must be built from the beginning with foresight, so as to be able to serve either the offense or defense.

(b) Fortifications are of great value in covering the mobilization of troops, and thus save the employment of large covering forces. [Example: The fortified front: Verdun—Belfort.]

(c) Fortifications can prevent the full destruction of field armies in case of defeat and enable them to reorganize without loss of ground. [Example: Belfort.]

(d) Fortifications constitute a powerful reserve for the field armies. [Example: Verdun—Toul—Epinal—Belfort.]

(e) Fortifications can render immediate assistance in battle to forward troops by long range artillery fire and thus aid in pinning the adversary to the ground. [Example: Nancy—Epinal.]

(f) Even old fortifications may be of value. [Example: Manonviller.]

(g) Isolated forts, which may be surrounded and cut off, can hold out only a limited time against siege, although they may serve to restrict the adversary's zone of action. [Example: Manonviller.]

(h) Fortifications are costly to adversaries in the casualties inflicted. [Example: Toul—Epinal.]

(i) Gaps in the fortified front, while tending to canalize the advances of the hostile forces, also place a heavy burden upon the defender.

(3) "L'ORGANISATION DU TERRAIN." [Organization of the terrain.]

This is a continuation of a translation from the French that was begun in the August issue of "Pioniere." It is devoted to technical details pertaining to the layout of strong points and centers of resistance, with special attention given to the laying of barbed wire and the siting of machine guns thereon. One section is devoted to the construction of bomb-proof shelters, and still another to the improvisation of obstacles and road blocks, among which may be listed: armored-car obstacles, low trip-wire, chevaux de frise, and walls of tree trunks. The entire article is of an elementary nature, corresponding closely with certain paragraphs of our own Training Regulations.

(4) DIE PANZERFRAGE. [The question of armor.]

Herein is discussed the general subject of armored turrets and their resistance to heavy artillery fire, beginning with the rapid fall of the fortifications of Lüttich, Namur, Antwerp, and Maubeuge in 1914 and continuing to recent experiments conducted with the newest types of shelters. Both tactical and technical factors are considered in some detail.

(5) AUSBILDEN DER PIONIERKOMPANIEN. DIE HOCHGEBIRGSPIONIER-KOMPANIEN. [Engineer company training. Mountain Engineer Company.] This brief article deals with methods of training in connection with military engineering activities in mountainous country.

(6) SPERRFORT MANONVILLER. [The Fortress of Manonviller.]

Detailed plans of the Manonviller fortifications are given with illustrations in this more lengthy article, and the scheme of defense is carefully outlined. The German order of battle is then laid down, followed by the results of the assault. Interesting photographs depict the effects of artillery fire on the armored turrets.

(7) DIE FRANZÖSISCHEN UND BELGISCHEN OSTBEFESTIGUNGEN. [The French and Belgian eastern fortifications.]

This article, undoubtedly the *pièce de resistance* of the November "Pioniere," is accompanied by a general map (1:2,000,000) covering the theater of operations. It is replete with statistical details of the plans for defense, the layout of the fortifications and their underground communications, and the cost involved in construction. The rest is of an historical nature, well worth a careful reading in the original.

(8) DOUAUMONT. [Douaumont.]

Similar to the preceding article in its search for details, this one discusses the fortifications at Douaumont with special emphasis upon the

German attack of 1916. The gist of the story is contained in two aerial photographs, one taken in February, the other in October 1916. In the latter photograph all but a trace of the original fortification is obliterated; the ground is so pock-marked with shell holes as to present a texture like that of very rough concrete; no lines of communication remain visible. The article does not attempt to draw a military lesson, and remains narrative, pure and simple.

(9) EISENBETON ALS PANZER. [Reinforced concrete as protection material.]

This article discusses the use of reinforced concrete (normal and quick-setting) in connection with the construction of permanent fortifications and shelters. Among other things is presented a schematic drawing of a suggested method for pumping the mixed concrete to an elevation above the tops of the forms. Following this, various types of reinforcement are considered, including twisted wire, steel bars, chicken wire, and expanded metal. Of these, the last named is indicated to be the most generally satisfactory. The effects of a shell striking bare concrete and concrete covered with earth are shown by a sketch. The article has little military value and is elementary when viewed from an engineering standpoint.

(10) CHEMISCHE KAMPFSTOFFE BEIM BAU VON BEFESTIGUNGEN. [War chemicals in connection with fortification construction.]

Gas-proof entrances to subterranean shelters and emplacements are considered briefly in connection with ventilating systems. The suggestion is made that air be forced in at one point through filters and neutralizing agents, thence circulated to the various turrets, in the case of an interconnected system.

QUARTERMASTER REVIEW

January-February 1935

- (1) THE C.C.C. IN NEW ENGLAND. Lieut. Colonel Rich
- (2) AT LIAO YANG. Captain Sweet
- (3) OUR NEWEST ARMY POST: HAMILTON FIELD. Captain Nurse
- (4) FORT NIAGARA. Prepared from data furnished by Captain McKeever
- (5) INFLUENCE OF AIR WARFARE ON LOGISTICS. Brigadier General Westover
- (6) THE QUARTERMASTER STOREHOUSE OF KNOWLEDGE. PROBLEM NO. 1: FORTY QUESTIONS

March-April 1935

- (7) USE OF THE NATIONAL GUARD AS STATE TROOPS. Prepared in the National Guard Bureau
- (8) THE PUERTO RICO NATIONAL GUARD. Major General Winship
- (9) THE GENERAL OFFICERS OF THE NATIONAL GUARD
- (10) THE DEVELOPMENT OF THE NATIONAL GUARD. Lieut. Colonel Weiler
- (11) THE FUTURE OF THE NATIONAL GUARD. Major General Leach
- (12) THE TRAINING OF THE NATIONAL GUARD. Major O'Grady
- (13) MOTORS FOR THE GUARD. Lieut. Colonel Shelter
- (14) DEVELOPMENT OF MARKSMANSHIP IN THE NATIONAL GUARD. Major General Reckord
- (15) THE NATIONAL GUARD BUREAU. Saunders
- (16) NATIONAL GUARD AIR CORPS. Major Cousins
- (17) THE HAWAII NATIONAL GUARD. Colonel Smoot
- (18) THE N.G. ASSOCIATION OF THE U.S. AND THE ASSOCIATION OF STATE ADJUTANTS GENERAL
- (19) THE QUARTERMASTER STOREHOUSE OF KNOWLEDGE. PROBLEM NO. 2: FORTY QUESTIONS

REVISTA DEL EJERCITO Y DE LA MARINA (Mexico)

By First Lieutenant M.D. Taylor, Field Artillery

October 1934

(1) **EL SABER Y LOS MILITARES.** [The learning of soldiers.] Colonel Garcia

(2) **SISTEMA SEGUIDO EN LA DIVISION TERRITORIAL MILITAR DE UN PAÍS. PROYECTO DE LA DIVISIÓN TERRITORIAL MILITAR DE LA REPÚBLICA MEXICANA.** [A method for the military sub-division of a country on a territorial basis. A proposed division of Mexico into military districts.] Captain Rivas

In developing his subject the author makes use of data which form the basis of a military geographic and economic study of Mexico. Of particular interest to the military geographer are the appended maps showing the roads, railways, telegraph and radio net, and drainage system of the country.

(3) **OPERACIONES NOCTURNAS.** [Night operations.] Captain Caballero

The author is one of the increasing number of modern military writers to predict the extended use of night operations in future wars. He lists the following situation as favorable to the use of night attacks:

(a) To compensate for inferiority in means or numbers.

(b) To seize an important terrain feature needed to facilitate a future operation.

(c) To complete an operation interrupted by nightfall prior to its conclusion.

(d) To reestablish or maintain contact with the enemy.

(e) To break off contact prior to a withdrawal.

(f) To execute a coup de main.

(g) To exploit the demoralization of a defeated and retreating enemy.

After describing the precautions necessary for the execution of a successful night attack, the author concludes with an account of the unsuccessful night attack of a battalion of the 6th and of the 44th Infantry (French), north of Soissons in January, 1915; also that of the successful attack of two battalions of the 223d Infantry with one battalion of the 217th Infantry (French) near Gondrexon in June, 1915.

(4) **SOBRE LA ACTIVIDAD DEL QUE COMANDA EN EL CAMPO DE BATALLA.** [Concerning the attitude of the commander on the field of battle.] Cadet Mitsucka, Japanese Army

November 1934

(5) **NUESTROS PROBLEMAS SOCIALES Y EL EJÉRCITO NACIONAL.** [Our social problems and the national army.] General Amaro

(6) **LOS FERROCARRILES EN LA GUERRA.** [Railways in war.] Brig. General Lobato

After discussing generally the importance of railways in mobilization, concentration, strategic troop movements and supply, the author turns to a consideration of the Mexican railways. These were laid down from commercial rather than military considerations. To make them serve the country in war, the following steps should be taken:

(a) Legislation transferring the roads to the government in time of war and authorizing the government to supervise their preparations in time of peace.

(b) Unified direction of strategic troop movements.

(c) Study by selected personnel in time of peace of the military use of railways.

(d) Organization of operating personnel in time of war from railway employees and officials.

(e) Creation of railway battalions for the construction and maintenance of railroads.

(f) Division of functions between military and civil personnel.

(g) Creation of a Railway Council composed of representatives of the army, the cabinet, and the railway companies.

(7) LA GUERRA Y EL FERROCARRIL. [The railway in war.] Lieut.-Colonel Farias

(8) CONCEPTOS GENERALES SOBRE EL ENLACE Y LAS TRASMISIONES. [General considerations of liaison and communications.] Colonel González

(9) PROTECCIÓN CONTRA AGRESIVOS QUÍMICOS. [Protection against chemicals.] Lieut. Colonel Zárate M.

(10) EL PUEBLO, LA TROPA Y EL INFANTE MEXICANOS. [The people and soldiery of Mexico.] Captain Beristáin

(11) CARACTERÍSTICAS Y EQUIPO DE LOS AEROPLANOS DE OBSERVACIÓN. [Characteristics and equipment of observation aviation.] Captain Corzo y Molina

December 1934

(12) EL PROBLEMA RELIGIOSO DE MÉXICO. [The religious problem in Mexico.] Brig. General de la Cadena

(13) LOS PRINCIPIOS DE LA GUERRA Y SU INTERPRETACIÓN EN MÉXICO. [The interpretation of the principles of war in Mexico.] Lieut. Colonel Alamillo Flores

(14) MANIOBRAS REGLAMENTARIAS DE LA ARTILLERIA. [Drill and tactics of field artillery.] Evers

REVUE DE L'ARMEE DE L'AIR (France)

By Major C.H. Wash, Air Corps

October 1934

(1) L'AVIATION DU MAROC ET L'AFFAIRE DU SAGHO. [Moroccan aviation in the Sagho campaign.] Captain Breyton

An illustrated account of the Sagho campaign in Morocco, from 9 February until 27 March, 1933, with particular reference to the participation of the Moroccan Aviation Group (six squadrons) in the operations. The aerial photographic work in preparation for this and a subsequent campaign, was done by the same squadrons. An article on this phase appeared in a previous issue.

A summary of the operations shows 2278 flying hours, representing 1362 flights in the 46 days of the campaign. Of these flights, nearly half were bombardment missions. Over 12,000 bombs were used, practically all of them 22-pound fragmentation type. The effect on the natives was highly gratifying.

(2) LA GUERRE AUX BASES DANS LA GUERRE AÉRIENNE. [Aerial warfare against air bases.] Lieutenant Barjot

An illustrated article with historical examples which advances the following views on bombardment aviation.

"Day Bombardment" should possess the speed of "Pursuit," be able and expected to engage in aerial combat, and be restricted to operations against relatively close objectives.

Night Bombardment, on the contrary, should operate at high altitudes, with an "endurance" equal to the total hours of darkness; should avoid aerial combat and be used against aerial bases, aircraft factories, and other objectives deep in enemy territory.

(3) ESQUISSE D'UN PROGRAMME DE MATERIEL D'AVIATION MILITAIRE. [Outline of a program for military aircraft.] Captain Coint-Bavarot

There always has been, and probably will continue to be, a struggle between the necessity of limiting the number of types of military aircraft demanded by tactical use, to the minimum consistent with rapid and economical production in war time and economical operation both in peace and war.

The author suggests that only five types are necessary and illustrates his article with examples from aircraft of various nations.

(4) HISTOIRE ILLUSTRÉE DE L'AVIATION EMBARQUÉE. [Illustrated history of "ship borne" aviation.] Last of three articles on this subject.

November 1934

(5) L'EFFICACITÉ DU BOMBARDEMENT AÉRIEN. [The efficiency of aerial bombardment.] Chief Engineer Rougeron

A deeply pessimistic view of the efficiency of aerial bombardment. The author reviews the history of aerial bombardment during the World War, compares aerial bombs with other projectiles, cites military, naval, and aerial authorities on the subject, and details the improvement of bombardment matériel, technique, and training since the war. He also gives the antiaircraft artillery and pursuit aviation credit for even greater progress during the same period and concludes that aerial bombardment is "the last trace of certain mystics to whom the War of 1914 was a death blow." M. Rougeron is "something less than kind," to bombardment.

(6) VITESSE ET DISPERSION DES AVIONS OFFENSIFS. [Speed and dispersion of combat aircraft.] Captain Etienne

The solution of a childhood problem as I remember it, was to "invert the divisor and multiply." The author inverts the famous Douhet doctrine and reaches a solution, which to use his own words, proves that "Three Turks are not stronger than one." He advocates, not without reason, the abolition of flights in formation for any purpose from reconnaissance to bombardment. He reduces the Douhet doctrine of "aerial armadas" intent on combat, crushing their way through all opposition, to the unity of a single fast airplane attempting to accomplish its mission by virtue of its speed and its consequent ability to avoid combat. He has not "the blind faith in the offensive."

(7) L'AVIATION ET LA PACIFICATION DU GRAND ATLAS CENTRAL. [Aviation and the pacification of the Grand Atlas Central.] Captain Breyton

More sustenance for the advocates of "Historical Illustrations." An account of the final campaign against the "dissidents" of Morocco. It is the same play which was presented in this country sixty odd years ago. The cast is changed, the stage is different, the "props" are modern, but the theme song remains unchanged.

(8) LES RENSEIGNEMENTS MÉTÉOROLOGIQUES. [Meteorological information.] Captain Besse

A criticism of the meteorological system in France, which is of purely local interest.

(9) SIX MOIS DE GUERRE AÉRIENNE. [Six months of aerial warfare.]

A review of a British book published in 1920, entitled, "History of 99 Squadron," by Major Pattinson. This squadron was part of the Independent Air Force from May to November, 1918. This article should be of great interest to all bombardment personnel.

(10) AVIATION JAPONAISE. [Japanese aviation.]

The Japanese Naval Aviation must have been carrying the mail (29 killed, 11 gravely wounded in first ten months of 1933).

(11) LES MESURES D'EXPANSION DE L'AVIATION BRITANNIQUE. [Measures taken for the expansion of British aviation.]

December 1934

(12) LE MONOPLACE, AVION DE RENSEIGNEMENT ET DE TRAVAIL. [The single seater, the general purpose airplane.] Captain Garsonnain

There is no corresponding term in English for the French "avion de travail." In general, it represents that class of aircraft used for reconnaissance missions, both close and long distance, artillery rellage, photography, infantry contact, surveillance, and other such missions which are not primarily offensive (combat) missions.

The purpose of this well reasoned article is a comparison of the monoplace with the bi-place and multiplace for certain military functions. It is based upon an evaluation of the dangers of antiaircraft fire, the importance of the factors, speed, and maneuverability, the offensive qualities of the monoplace, the defensive qualities of the bi-place and multiplace,

the restrictions upon and the possibilities of observation, and the problem of fire.

His conclusions are all in favor of the monoplane for many purposes for which we have come to consider a bi-place or a multiplace essential.

(13) LE BOMBARDEMENT EN PIQUÉ. [Dive bombing.] Chief Engineer Rougeron

A ballistic study of the comparative accuracy of bombardment from horizontal flight and from vertical or nearly vertical flight. The author attributes to dive bombing an accuracy twice that of horizontal flight bombing against targets of average or large size and four times as great against small targets, under exactly the same conditions. He argues that the greatly increased speed and ceiling of present day bombardment have increased the difficulties of securing accuracy to a point that renders a change in bombing methods and tactics indispensable. He does not insist that the dive bombing is the answer, but that it is an improvement.

(14) DÉMONSTRATION ÉLÉMENTAIRE DE PROPRIÉTÉS DES CARTES ORTHODROMIQUES CONFORMES DE M. KAHN. [An elementary demonstration of the properties of the orthodromic maps of M. Kahn.] Major Ardouin-Dumazet

(15) DOCUMENTS INÉDITS SUR LES AÉROSTIERS DE LA RÉvolution. [Unpublished documents upon the balloonists of the Revolution.] Dollfus

(16) L'AVIATION MILITAIRE AU VENEZUELA. [Military aviation of Venezuela.]

(17) LES CROISIÈRES DE LA ROYAL AIR FORCE. [The flights of the Royal Air Force.]

REVUE D'ARTILLERIE (France)

By First Lieutenant M.D. Taylor, Field Artillery

October 1934

(1) COMMENT NOUS AVONS TIRÉ SUR PARIS. [How we fired on Paris.] Major Dupont

This is the translation of a German account of the Big Bertha by one Heinz Eisgruber. It describes the origins of the gun, its initial emplacements and subsequent movement forward into the Marne salient in the spring of 1918. It barely escaped capture in the Allied counteroffensive of July 18, as it passed north through Soissons a very short time before the railroad came within range of the French artillery. The account is highly colored and appears to be of doubtful military value.

(2) ORGANISATION DU TIR DANS LE GROUPE D'ARTILLERIE LOURDE À GRAND CHAMP DE TIR HORIZONTAL. [Fire direction in a heavy battalion having wide horizontal traverse.] Lieut.-Colonel Gérin and Captain Valla

The authors recommend the composition and use of tables for parallax and range corrections as an easy solution to the problem of converging a battalion on a single point.

(3) MÉTHODE ANALYTIQUE POUR LE CALCUL DU RELÈVEMENT. [An analytical solution of the three-point problem.] Captain Desrumeaux

Given three known points, the author determines the coordinates of the unknown occupied station P by solving simultaneously the equations representing the circles which are the loci passing through P and any two of the known points.

(4) LA SÉLECTION DES AGENTS DE TRANSMISSIONS. [The selection of signal personnel.] (I) Lieutenant Donat

(5) UNE BOÎTE À SABLE AMÉNAGÉE POUR LE TIR FICTIF. [A sand table for use as a terrain board.] Captain Molard

November 1934

(6) UNE RÉFORME MANQUÉE DE L'ARTILLERIE AU XVIII^E SIÈCLE. M. DE VALLIÈRE ET SON TEMPS. [An unsuccessful reform in the artillery of the eighteenth century. M. de Vallière and his time.] Major Malartre

(7) NOTE SUR LES ABAQUES DE FINS DE TRAJECTOIRES. [Notes on the use of graphs representing ends of trajectories.] Colonel Manjaud

(8) DISPOSITIF DE TIR FICTIF. [A terrain board.] Captain Baranger

(9) CONTRIBUTION À LA PRÉPARATION RAPIDE DU TIR. [A contribution to the rapid preparation of fire.] Lieutenant Duchemin

(10) SÉLECTION DES AGENTS DE TRANSMISSIONS. [Selection of signal personnel.] (II) Lieutenant Donat

December 1934

(11) LE NOUVEAU RÈGLEMENT DE MANOEUVRE DE L'ARTILLERIE ALLEMANDE. [The new training regulations of the German artillery.]

This short anonymous article undertakes to sum up the essential features of the new German regulations. They contain a general trend toward a simplification made necessary by the fact that the men to be trained no longer serve for twelve years. The following changes are examples of this tendency.

The formations and evolutions of the battery limbered are reduced to those of practical use in the field. The parallel sheaf is considered normal for the execution of all fire missions. Sweeping is eliminated, a broad target being treated by a series of shifts of the entire battery. The use of shell is so generalized that the command is taken out of the elements of firing data. Reduced charges are made available for the field gun.

In the organization of the battery, there are two notable changes. The battery is given two radios; one a pack set for use at the observation post, the other carried in a wagon and normally kept at the battery position. The battery headquarters is given a calculation section consisting of a noncommissioned officer and a private. In the past, all calculations were figured by an officer.

(12) GRAPHIQUES UNIVERSELS DE PARALLAXE, DE CORRECTION PLANIMÉTRIQUE ET D'ANGLE DE SITE. [Universal graphs for parallax, planimetric corrections and angle of site.] Captain Stève

(13) SÉLECTION DES AGENTS DE TRANSMISSIONS. [The selection of signal personnel.] (III) Lieutenant Donat

(14) LES IMPORTATIONS ALLEMANDES DE MATHIÈRES PREMIÈRES NÉCESSAIRES AUX FABRICATIONS D'ARMEMENT. [German imports of raw materials needed for the manufacture of munitions.] Major d'Ervaux

(15) UN DISPOSITIF DE TIR FICTIF. [The construction of a terrain board.] Major Tostain

(16) LE PROBLÈME DE LA CORROSION. LES INOXYDABLES. [The problem of corrosion. Rust-proof metals.] Naval Engineer Régnault

REVUE DE CAVALERIE (France)

By Lieutenant Colonel N.B. Briscoe, Cavalry

November-December 1934

(1) ESSAI SUR LA SÛRETÉ. [Essay on security.] (II) Major Dauffer
The second and concluding installment in which the author concludes: That it is inexcusable to be surprised.

That the moral factor predominates in "security," depending upon material preparations and upon provision by the high command. "To guard his troops from all peril" is more complicated for the commander now than in the past.

Upon security depends the confidence of the commander.

Pessimism about the enemy is offset by the fixed point, the covering force, the polygon of security which guarantees him maneuver room.

The best solution is to fulfil the mission at the least cost.

Deep formations, while economical for the troops, exact of the commander constant activity.

(2) LES TRANSMISSIONS DANS LA CAVALERIE. EN MARGE DU RÈGLEMENT. [Communications in the cavalry. Notes on the regulations.] (I) Captain Bicquey

A study of means of communication of the cavalry division on the march, in offensive combat, on the defensive, and of the means in reconnaissance groups.

He discusses motorcyclists and mounted messengers, aviation messengers, radio, telephone, and dropped messages.

In the cavalry division on the march the command must be in communication with:

- (a) The higher command
- (b) The column commanders
- (c) The covering (reconnaissance or security or both) detachments
- (d) The aviation
- (e) The trains of the division.

Disposition must also be taken to assure:

- (a) Liaison between column commanders and the elements they command
- (b) Liaison between column commanders and the detachments between the columns.

He then discusses the means suitable in each case, adding pigeons and visual signals, and concludes that: the commander must have quick reports from covering detachments and aviation; the column commanders must be able to report their situations quickly and receive orders or information promptly.

On the march agents will be normal, aided by wireless for detachments at distances where its use is justifiable, and the telephone on existing lines being useful under some circumstances, especially for communication to the higher command.

(3) ARMÉES ÉTRANGÈRES.—LA CAVALERIE DANS L'ARMÉE DE L'U.R.S.S. [Foreign armies: Russian cavalry.] By Captain X . . .

The present strength of the Russian cavalry (active army) is 12 to 13 divisions of cavalry. The vast areas and the immense circumference of the country call for great mobility, warfare of maneuver and surprise—hence, 100,000 cavalry.

Soviet cavalry comprises:

Strategic cavalry—13 divisions, 10 active and 3 territorial (8 divisions are in 4 cavalry corps), and 9 separate brigades.

Cavalry pertaining to large infantry formations, one separate squadron per division, permanently assigned.

The cavalry corps (peace) comprises:

Headquarters

2 or 3 divisions

1 group of armored cars

1 group of artillery (4 batteries of 3 pieces of 144-mm.)

Services.

The employment of cavalry is based upon strategic maneuver in large masses—hence the corps organization.

Besides acting in conjunction with other arms, it assures covering operations, distant operations prior to battle, exploitation of success and pursuit after battle, and either constitutes the principal element of maneuver during the battle, acting against the flanks of the enemy, or takes upon itself the battle which it can carry on from beginning to end.

It fights mounted, primarily, seeking shock action, making use of mobility, terrain, and maneuver for flank action.

Combat formations always have two or three groups, viz.:

An attacking group of at least half the force,

A fixing group, and

A reserve, when circumstances require it.

On the defensive the same grouping is used.

Decentralization occurs in all echelons: In the regiment the machine-gun platoons are almost always apportioned to the squadrons. In the division brigades and regiments frequently have artillery attached.

Some modern tendencies are to have smoke cover troops crossing watercourses; tanks of 6 to 10 miles per hour speed act with covering detachments, and attack with the cavalry; gas (not in concentrations) is placed (even by patrols) at crossroads and defiles.

Cavalry acts in close cooperation with aviation, during reconnaissance, and by bombing during the attack.

Reconnaissance extends 60 miles, detachments are strong and consist of at least two squadrons with artillery.

On a war basis the division comprises: Headquarters (including a political section), 3 brigades each of 2 regiments, 1 separate squadron of machine guns, 1 regiment of horse artillery of 2 mixed groups each including 2 batteries of 3 guns, 76-mm.; 1 battery of 122-mm.; 1 squadron of engineers; 1 group of armored cars; 1 chemical platoon, 1 separate communications squadron. Services: artillery transport (rations and ammunition); supply train; medical service, veterinary service.

In comparison with the French cavalry division these points are noted: the combat strength is almost wholly cavalry; the almost total absence of motorized elements (due to shortage of matériel and to poor road net); the relative weakness in artillery as related to sabers; the great strength of the services (double that of the French) (important development of Russian bureaucracy and decentralization forced by vast spaces and form of warfare).

The communications squadron has one wireless set, telephone material and twenty motorcycles.

The engineer squadron has sappers, bridge crews, and road crews (the division takes care of its own roads).

The division of cavalry is essentially mobile, capable of fighting alone, but weak in fire-power, better fitted for maneuver and shock than for the fire fight.

The vast plains of Russia and Siberia favor multiplication of the number of large units rather than making them stronger.

The cavalry regiment consists of:

Headquarters (including gas unit)

4 squadrons of sabers, of 4 platoons each

1 squadron of heavy (Maxim) machine guns

4 platoons of 4 guns (total 16)

1 communications detachment

Services

An educational (political) club

1,000 men, 16 heavy and 16 light machine guns

Machine guns are always detached to squadrons in combat.

The peace-time organization is: 28 active infantry divisions, plus 43 inactive, while the cavalry runs 13 to 3. The divisions are capable of very rapid change to war strength, all units being present in reduced strength while on the peace basis.

"The junior officers and the men of the rank do not easily assimilate the technical knowledge necessary for modern combat; the spirit of initiative is not their forte.

"The cavalry lacks good horsemen to assure the schooling of young horses.

"But, paradoxical as it appears, it lacks horses; the Bolshevik regime has ruined a great part of the resources of the country."

(4) *L'OBSERVATION DU DÉTAIL DANS L'ENTRETIEN DES CHEVAUX EN CAMPAGNE.* [Observations on the care of horses in the field.] Spindler

The author is an authoritative writer and presents a discussion of marching, watering, feeding, care of the feet and of the back, and so on. There is nothing really new in the article, but the intention is to impress the young cavalryman with the importance of study of the subject.

REVUE D'INFANTERIE (France)

By Lieutenant R.E. Moore, Infantry

October 1934

(1) *L'A. B. C. DE L'EMPLOI DE L'ARTILLERIE.* [The fundamentals in the use of artillery.] Colonel Gautsch

The artillery, before it can accomplish its mission satisfactorily, must be supplied with adequate matériel—guns, ammunition, etc. If this matériel is not supplied and none is available, then the mission should be revised by the infantry commander to fit the means at hand. The author stresses the fact that, after having been given a mission to perform, the artilleryman utilizes the available matériel and time to the best of his ability, but that due to the lack of sufficient matériel and lack of foresight on the part of the infantryman, he is often given a task which is impossible to perform. If endowed with a sufficient amount of matériel, a reasonable amount of time and a little luck, the artilleryman will be able to accomplish almost any task which may be given him.

(2) UN SPECTATEUR D'INFANTERIE AUX ÉCOLES À FEU D'ARTILLERIE.
[An infantry spectator at the artillery schools of fire.] Major Kuntz

The artillery is the infantryman's best friend in battle, but in order to take full advantage of it, the infantryman must first learn to speak the language of the artillery. He must know what he wants and ask for it in terms that the artilleryman will understand. He should inform the artillery as to:

- (a) His own situation. For example, when the infantry has advanced too close to the edge of the zone of security provided by artillery fire, if the artillery is made aware of the situation, it may possibly shift from overhead fire to lateral fire. This would reduce the zone of security to 100 or even 50 yards since longitudinal dispersion is greater than lateral dispersion.
- (b) The kind of help desired—neutralization or destruction.
- (c) The front, and when possible, the depth of the objective.
- (d) The probable duration of useful artillery fire.

The author stresses the importance of gaining time and suggests that if more time were taken initially to inform the artillery of the infantry's desires, instead of giving it to them piece-meal as the battle proceeds, the result would be a saving of time. In giving the artillery their position, the infantry should tell him not only where they are, but where they have just come from and where they are going.

The French artillery has recently adopted a communication system whereby the battery, battery commander, group commander, and a new set-up which might be called a bureau of computations are all connected by telephone to a central. All information and messages come directly to the group commander who selects the important information and sends it to the bureau. The bureau studies it and puts it out in usable form to the batteries. Although this system permits of easy and quick communication and relieves the battery and group commanders of some of their responsibilities, the number of calls that go through the central switchboard is enormous, to say nothing of the calls that will necessarily come from the infantry. In fact, in an infantry-artillery maneuver, it would be almost impossible for the infantry to get any information to the artillery by telephone. In order to somewhat relieve this situation, the author suggests supplementing telephonic communication within the artillery group with visual and written communication.

Another notable change in the artillery set-up is that the group commander has been given a captain (adjutant-major) in order that he may be able to devote more time to communicating with the infantry commander without actually relinquishing either command or control of his batteries. The next step in perfecting infantry-artillery cooperation is for the infantry battalion, which is becoming more and more the basic tactical unit, to adopt a similar system whereby the battalion commander will be relieved of petty details and will be able to get a broader view of the situation; a system which will allow him to devote more time to talking things over with the artillery commander. It is only by talking things over and understanding each other that the infantry and artillery will ever be able to reach perfect cooperation.

(3) REMARQUES SUR L'OBSERVATION DU TIR DES ENGINS D'ACCOMPAGNEMENT. [Remarks on observation of fire of accompanying weapons.] Major Desroche and Captain de l'Eprevier

(4) LA CHAINE. FICHIER POUR L'INSTRUCTION COMPLÈTE DES RECRUES DE L'INFANTERIE, À L'USAGE DES INSTRUCTEURS DE TOUS GRADES. [The chain. A system for the complete instruction of infantry recruits for the use of instructors of all grades.]

A brief summary of a new method of training recruits.

The subject is divided into three parts: (1) The introduction, which describes what should be accomplished; (2) some tables which correspond roughly to our master schedules for training; and (3) outlines of each lesson for the use of instructors.

Under this plan, 100 training days of 7 hours each or 700 hours are allowed for the training of recruits. In reality, the training period lasts about 6 months, but after holidays, half holidays, normal leaves, vaccination days, etc., are deducted, there remain only about 100 actual training days.

When the recruits first enlist, they are all given a certain number of hours of basic training. Thereafter, they are given special training according to the particular line of duty they intend to perform.

The method simplifies the task of instructors and commanders and systematizes the instruction of recruits so that they all receive the same training in fundamentals and in their particular line of work.

November 1934

(5) LA MISSION DES OFFICIERS DE RÉSERVE. [The mission of the reserve officers.] An address given by Marshal Pétain, at the Reserve Officers' convention.

The task of the reserve officer will be more difficult in the next war than in the last. The World War of 1914-1918 was a slow-moving war and lasted four years, thus giving the reserve officer ample time to become accustomed to his new surroundings and duties. However, due to the ever increasing speed and deadliness of modern machines of war, it is logical to assume that the next war will last a comparatively short time. This means that the reserve officer, more than ever, must prepare himself in time of peace so that he will be able, when war breaks, to function efficiently and without further training.

For many years, most of the great powers of Europe have had compulsory military service. However, in the last few years some of the powers, such as Russia, Germany, and Italy have even gone so far as to start the child's military training from the time he enters school, filling him with ardor and the desire to serve his country, so that all that is left to do when he becomes of age to enlist, is to perfect him in the technique of his branch. Marshal Pétain urges the reserve officers to use their power in civilian life to bring about an increased interest in military training in France. It is their mission during time of peace to spread the military gospel by word of mouth, by pen, and above all, by personal example.

(6) LA 53E DIVISION D'INFANTERIE ET LES TCHÉCOSLOVAQUES À TERRON-SUR-AISNE (OCTOBRE 1918). [The 53d Infantry Division and the Czechoslovakians at Terron-sur-Aisne, October, 1918.] Lieut.-Colonel Preininger, Czechoslovakian Army

(7) FEUILLETS DÉTACHÉS D'UN CARNET DE CAMPAGNE. [Detached leaves from a campaign diary.] By Major "M"

The author, in several short pictorial descriptions, presents the impressions he received at: La Bordette, 26 June, 1918; L'Huis, 31 August, 1918; Amiens, 23 September, 1918; between Poelcapelle and Raschendale, 13 October, 1918; 13 November, 1918; Nederhasselt near Minove, 19 November, 1918.

(8) RÉFLEXIONS SUR L'INSTRUCTION DU TIR CONTRE AVIONS DANS L'INFANTERIE. [Thoughts on antiaircraft fire instruction in the infantry.] Major Tritschler

Believing that the rifle and automatic rifle will play an increasingly important role as antiaircraft weapons, the author discusses several new methods of training the soldier in the use of these weapons against aircraft. He offers several suggestions for peace-time training along this line, chief of which is a mechanism which, by means of a system of mirrors, casts a moving ray of light on a screen or wall. The speed and direction of the ray can be changed at will. It is also possible with this device to measure the exact amount of lead that should be taken in firing at the moving ray. Its chief advantages are that it is inexpensive and easy to operate.

For outdoor firing at longer ranges, the use of electric motors to move the target across the horizon on tracks is suggested. Observers would be stationed in pits behind the target to observe the fire.

(9) L'INSTRUCTION DES CADRES DE L'INFANTERIE: CAS CONCRETS. [Instruction of infantry cadres.] Lieut.-Colonel Guigues

A problem in defense.

December 1934

(10) NOS JOURS DE GLORIE: NOVEMBRE 1918 EN LORRAINE ET DANS LA SARRE. [Our days of glory: November, 1918, in Lorraine and in the Saar.] Lieutenant E.R. (Paul Tuffrau)

The author, who was in command of a battalion of the 208th Regiment, describes his observations in this territory just before and just after the Armistice.

(11) TRAVAIL TECHNIQUE DE MITRAILLEUSES. TIRS LOINTAINS. [Technical work of machine guns. Long range fire.] Captain Flouquet

A map problem and discussion.

(12) FLANQUEMENTS ET GRANDS FRONTS: RÉFLEXIONS AU SUJET DE DEUX ARTICLES PARUS DANS LA REVUE D'INFANTERIE. [Flankings and large fronts. Thoughts on two articles which appeared in the Revue d'Infanterie.] By "X"

In this article are discussed the two means of action: fire and movement, and that the second is plainly dominated by the first. Certain foreign nations, in their military press, say that it is part of French doctrine to accept this situation, while it is part of their doctrine to search for movement with the utmost tenacity. But in the defensive, whoever speaks of movement speaks of reserves. It is an old military adage that "the weaker the front, the more the need for reserves." Most foreign nations follow this adage fairly well.

Two important thoughts are brought out: first, in the face of heavy fire, a command must keep itself abreast of the action and transmit orders rapidly; second, reserves must be extremely mobile.

(13) NOTE SUR LE TIR DE FLANQUEMENT. [Notes on flanking fire and its value.] Lieut.-Colonel Metz

The Revue d'Infanterie recently published two articles giving two different points of view concerning flanking fire. The first was by General Lugand. He dwelled upon the lessons learned from the last war, and discussed flanking fire from an offensive point of view. His definition of the term is, "to strike the enemy in a vulnerable flank." The other article, written by Trebous, takes up the question of flanking from quite another angle. Trebous says that theoretically flanking fire is less efficient than frontal fire. However, after making this bold statement, he quickly goes on to discuss it from a practical point of view. This article discusses in some detail the questions brought up by Trebous and the advantages of the two types of fire.

The conclusions arrived at concerning the comparative advantages are:

(a) That frontal fire is superior to flanking fire under the following conditions:

(1) When the speed in crossing an area covered by flanking fire is greater than that in crossing an area covered by frontal fire.

(2) When the enemy is required to cross the whole zone of dispersion of frontal fire.

(3) When there are enough automatic weapons to place them side by side as we have done.

(b) That flanking fire is superior to frontal fire:

(1) When it is possible to combine it with the use of obstacles.

(2) Even if there are no obstacles, when the enemy makes use of covered routes of approach.

(3) When we do not have an enormous number of automatic weapons or when we wish to practice economy of forces.

(14) UNE ÉTUDE SUR LE DÉVELOPPEMENT DU COMBAT À L'INTÉRIEUR DU DISPOSITIF ENNEMI. [A study on the development of combat in the interior of the enemy disposition.] Lieut. Colonel "Z"

(15) LE SALON DE L'AUTOMOBILE EN 1934: SON INTÉRÊT MILITAIRE. [The automobile show of 1934: its military interest.] Captain Le Gouest

REVUE DU GENIE MILITAIRE (France)

By Major P.C. Bullard, Corps of Engineers

November-December 1934

(1) LA DÉFENSE DE L'ILE DE LA RÉUNION EN 1810. [The defense of Reunion Island in 1810.] Documents from the archives of the Technical Engineer Section.

An account of the 24-hour efforts at defense of the island by some three hundred Frenchmen against several thousand British troops.

(2) PASSAGE DE L'AISNE PAR SURPRISE LE 6 NOVEMBRE 1914. [Passage of the Aisne, 6 November, 1914, to attack the village of Soupir.] Captain Simon

In connection with a limited-objective attack by the French 1st Division to regain certain lost ground, a battalion of infantry, assisted by a company of engineers, with pontons, crossed the Aisne Lateral Canal and the Aisne River on the flank of the main attack. The pontons were placed in the river several miles upstream and were floated to the point of crossing, even passing through 1 mile length of the river held by the Germans. The battalion was then ferried across, just before dawn, and advanced under cover of morning fog. Surprise was attained and the operation succeeded, though the main attack of the division did not advance as far as had been planned.

Several days later, another similar though smaller operation failed as a result of poor functioning of infantry-engineer liaison and unexpected lifting of fog.

(3) NOTE SUR UNE NOUVELLE SONDEUSE UTILISANT UN PROCÉDÉ DE FORAGE PAR BENNE PRENEUSE. [A new drill using an orange-peel bit.] Joffet

A heavy steel head, about 10 feet long, with a small orange-peel at the bottom, is dropped successively into the drill hole with the leaves of the orange-peel open until a short progress has been made, when the leaves are closed and the loosened material is removed. The operation is executed in the dry. Wells from 6 to 40 inches can be sunk. Hourly rates have been 25 feet in clay, 10 feet in chalk, and 20 inches in the harder limestones. The equipment is mounted on a trailer and is suitable for field use.

Though the article discusses its use only for water supply, yet it might possibly be suitable for drilling to place charges for mine craters.

(4) EMPLOI DU GÉNIE AUX OPÉRATIONS DU MAROC EN 1933. [Employment of engineers in the operations in Morocco in 1933.] (II) General Naquet-Laroque

The engineers, in connection with communications detachments of other arms, furnished the signal communications for all military operations, and at the same time continued to operate and extend the telephone, telegraph, and radio communications in the pacified territory. Over 1,700 miles of line, temporary or permanent, were constructed.

Among the interesting conclusions developed were the following: Wire connection could always be established whenever the commander was able to determine in advance his axis of movement. Radio with wavelengths of about 50 to 100 meters operated well in the open spaces of the Sahara, but were unsatisfactory in mountain warfare. The great lesson learned is the confirmation once again that the effectiveness of signal communications is above all a matter of efficient personnel, that is, of training and organization. It frequently happens, in periods of crisis, that the communications are overloaded, no matter how good the personnel; at this time the presence and action of a competent signal officer is necessary, for sound judgment as to matters of urgency and priority of transmitting messages is of more value than any rules which can be prepared. The choice of this officer is of great importance; he should be a chief of service rather than a technician. Furthermore, the staff itself should know more of the handling of signal communications, including the time necessary to transmit messages, and the information needed in order that they may be effectively handled.

REVUE MILITAIRE FRANCAISE (France)

By Major C.A. Willoughby, Infantry

October 1934

(1) SCHLIEFFEN ET MOLTKE LE JEUNE. [Schlieffen and Moltke the younger.] Lieut.-Colonel Pugens. (See abstract, page 65.)

(2) LA RECHERCHE ET L'UTILISATION DES RENSEIGNEMENTS DANS UNE SITUATION DE GUERRE, 9 SEPTEMBRE 1914. [Collection and evaluation of intelligence in a World War situation, 9 September, 1914.] Colonel Bernis

Colonel Bernis, whose well-known study "Le renseignement à la guerre,"* has marked him as the ablest exponent of modern intelligence methods, applies his ideas in this article. It covers the military situation of 9 September, 1914, when the German First Army, v.Kluck commanding, was separated from his neighbor by a gap of about 25 miles, into which the B.E.F. and a French cavalry corps were beginning to thrust themselves. The German situation, as regards the front-line units, was fairly well known, while the situation in rear of the German front was relatively obscure. Due to a systematic program of demolitions by the French in their retreat, German General Headquarters had available, at this date, only a single railroad line, for the lateral shifting of reinforcements: the line from Lorraine via Aix-la-Chapelle—Brussels—Mons—Compiègne. All armies had out-distanced their supplies; the railheads were far in rear; for the Second Army at Fourmies, at 90 miles, for the Third Army at Chimay, at 110 miles, and the Third Army at Carignan and Sedan, approximately 85 miles. Obviously the maneuver capacity of the German armies was seriously restricted by this (a) paralysis in communications, and (b) the menacing gap between the First and Second Armies. These are what we term "essential elements of enemy information," and a modern "Plan for Collection of Enemy Information" would have provided for intensive intelligence measures, centering on these features. Modern aviation would have recognized the precarious conditions behind the German front. The French might conceivably have known that the German XV Corps had to be routed via Brussels—Valenciennes. At about that time, the Germans knew that the French IX and XXI Corps were shifted from the Nancy—Belfort front, and of course, reconnaissance facilities of 1914 can not compare with the vastly improved equipment of 1935.

Modern aviation would have recognized the supply situation behind the German front, and would have realized the railroad situation. What a target for modern bombardment aviation this slender thread of commun-

*Translated as Individual Research subject, Class 1934, C. & G.S.S.

cation would have been! What strategic possibilities would have been possible as early as 4 September!

Joffre saw the dangerous situation v.Kluck was in and strove hard to press his advantage, but he never had the precise information that modern means surely would have furnished him. In particular, the relative weakness of the German forces covering the gap between the First and Second Armies. The withdrawal of the German III and IX Corps from this gap would have been noticed by aviation; the more scientific method of modern intelligence would have obtained "identifications" from wounded or prisoners, during the period 6-9 September, that would have confirmed the withdrawal of these units.

There is no doubt that the French commander would have had this information under modern conditions. This would have confirmed his decision, or accelerated it.

(3) *LA LIAISON MORALE. CE QU'EST UN TIR D'ARTILLERIE.* [Liaison for morale. Artillery support.] General Faugeron

The author insists on the importance of artillery cooperation with the other arms. The writer believes that there is not sufficient liaison between the artillery components of the division and the remaining troops; he cites World War instances. On the other hand, the artillery is sometimes left in the dark regarding the details of its mission; a simple statement that the artillery "will support a (certain) unit" is not enough. The mission, the tactical situation, and the intentions of the commander must be fully communicated to the artillery, so that this arm may participate early in the preliminary operative studies that are required by all staffs and commanders; a hurried last-minute assignment of artillery missions is not adequate.

(4) *ALLEMAGNE: BUDGET DU REICH DE 1933.* [Analysis of the military appropriation for Germany, 1933.]

(5) *L'ARTILLERIE DANS LA BATAILLE.* [Artillery in battle.]

Under this title follows a brief of the conferences on "Artillery given at the Ecole Supérieure de Guerre, in the course 1933-34. A previous instalment appeared in the July, 1934, number. This section covers the employment of artillery groupments. Chapter V—Organization of artillery; Chapter VI—Emplacement and displacement; Chapter VII—Conduct of fire.

November 1934

(6) *LA MANOEUVRE DE LORRAINE (AOÛT-SEPTEMBRE 1914).* [The maneuver in Lorraine, August-September, 1914.] (I) Colonel Pugens

Colonel Pugens, the noted French military historian, begins a series on the operations of the German Sixth and Seventh Armies, August to September, 1914. These armies were commanded by Prince Rupprecht of Bavaria. Moltke's plan considered a strategic withdrawal on this front; Rupprecht managed to defeat this intention. The command control of German General Headquarters, in these critical days, was lax. The action of Rupprecht's armies was contingent on corresponding French action. His interpretation of the local situation led to an attack, the Battle of the Saar.

(7) *LES DERNIÈRES ÉTAPES DE LA PACIFICATION DANS LE GRAND ATLAS MAROCAIN.* [The last phase of the Moroccan pacification.] (III) Lieut.-Colonel Lancon

Colonial warfare in Morocco. The last phase of French pacification of that turbulent area.

(8) *LES POSSESSIONS ESPAGNOLES AU SUD DU MAROC.* [The Spanish possessions south of Morocco.]

(9) *ITALIE: LES GRANDES MANOEUVRES ITALIENNES D'AOÛT 1934.* [Report on the grand maneuvers in Italy, August, 1934.]

Report on the important maneuvers, on the line: Bologna—Florence. Considerable forces were employed: 2 armies, 5 corps, and 15 divisions. The terrain, the Apennins, is mountainous and presented considerable logistic problems. The general situation involved (a) strategic covering

forces, (b) rupture of the covering line and exploitation, and (c) the defensive reaction on the part of the opponent.

The employment of so-called "mobile" divisions was noted, viz.: 1 cavalry brigade (2 regiments), 1 regiment Bersaglier, 1 battalion tanks, portée, 1 battalion fast tanks, 2 battalions field artillery (75-mm. Howitzer), 1 battalion field artillery, 105/28, trains.

December 1934

(10) **LA MANOEUVRE DE LORRAINE (AOÛT-SEPTEMBRE 1914).** [The maneuver in Lorraine, August-September 1914.] (II) Colonel Pugens

Final instalment of previous article. The author continues to cover the operations of Rupprecht's Sixth Army. The French counterattack against the right of this army was well timed and well directed; it involved the III Bavarian Corps. This attack placed the initiative in the hands of the French Second Army; by 27 August an equilibrium had been established. The set-back to the French armies and their subsequent recovery are interesting phenomena of these rapidly moving operations.

(11) **LES DERNIÈRES ÉTAPES DE LA PACIFICATION DANS LE GRAND ATLAS MAROCAIN.** [The last phase of the Moroccan pacification.] (IV) Lieut.-Colonel Lancon

Conclusion of current series on colonial warfare in the Moroccan area.

(12) **vieilles histoires alpines.** [Old Alpine events.]

Three historical examples of the crossing of mountain passes in winter:

(a) The passage of the Great St. Bernard (1800),
(b) The crossing of the Splügen Pass by the Army of the Grisons (1800), and

(c) The passage of the Chipka Pass, January, 1878.

It is recalled that during the World War there were large-scale operations in the mountains, in the Carpathians, and in Armenia; in all cases, the troops were exposed to extraordinary hardships.

REVUE MILITAIRE SUISSE (Switzerland)

By Major F. During, Infantry

October 1934

(1) **MOTORISATION ET CAVALERIE.** [Motorization and cavalry.] General Rouquerol

The author points out—and not without regret—how motorization is gradually driving cavalry from the organization of modern armies, and calls attention to the importance of adjusting one's ideas to modern conditions. Great Britain, United States, and France are organizing large units, entirely motorized. In Great Britain the tank has become a separate arm working in cooperation with other arms, but not depending upon them. The German and Italian armies prefer collaboration of motorization and cavalry, but their cavalry is being equipped with an increasing number of motor vehicles.

The author recommends that a change should be made gradually. Cavalry is very vulnerable to gas attacks, but motor vehicles, being tied down to roads, are exposed to view from airplanes and their movement may become restricted to hours of darkness. Furthermore, a motor column may be completely held up by a demolished bridge. Such halts, of course, have always been liable to occur with troops on the march, but they were of less consequence when troops moved more slowly.

(2) **LE NOUVEL ARMEMENT DE NOTRE ARTILLERIE.** [The new armament of Swiss artillery.] Major Gonard

Major Gonard gives a description of the new Swiss mountain gun. The old Krupp mountain gun had defects which could not be removed by improvements, and it was necessary therefore to design a new gun, which was turned out by the Bofors factory in Sweden. The new gun is of 75-mm. caliber and the ammunition is interchangeable with that of the field piece.

The maximum range, obtained with an angle of elevation of 42 degrees, is about 10,500 yards. The gun is carried on the animal or can be drawn on wheels by animals in tandem.

November 1934

(3) LE MÉTIER DE CHEF. [Leadership.] Lieut.-Colonel Mayer

The author compares leadership in civil life with that of an army commander. The qualifications for both are very similar. Command is a profession, subject to definite rules, which can be learned. The author claims that a commander does not necessarily have to possess a perfect knowledge of tactics, nor does he need be a technical expert, in order to be a great leader, but it will be a help to him if he possessed these qualifications. Napoleon was not above resorting to trickery in order to impress people with almost supernatural gifts which he did not possess. A comparison is made between Napoleon and Moltke. The former was constantly with his men on the battlefield; the latter, cold and distant, kept away from the troops. Silence, in a leader, may be a sign of a strong will. Moltke, Kitchener, and Joffre were silent men, while Napoleon and Foch were both talkative.

(4) RAVITAILLEMENT ET ADMINISTRATION DES COLONNES DE TRAIN. [The supply and administration of trains.] Captain Buxcel

The author discusses the question of administration and the supply of trains, with special reference to a mountain brigade, which consists of two regiments of infantry and mountain artillery.

December 1934

(5) LE PASSAGE DE LA MARNE PAR LA 200E DIVISION D'INFANTERIE ALLEMANDE, LE 15 JUILLET 1918. [The crossing of the Marne by the German 200th Infantry Division, on 15 July, 1918.] Colonel Grasset

On 14 July, 1918, the French Sixth Army under General Degoutte, was holding the Marne between Chateau-Thierry and Troissy, a frontage of about 22 miles. It consisted of four corps and four divisions not attached to any corps.

The French plan was to hold the river line lightly with four divisions, but to resist an attack by the Germans should the latter be successful in forcing a passage. The German plan was to hold the river line with 2 divisions and to attack during the night 14-15 July with 12 divisions, a preponderance of 3 to 1. In artillery pieces the Germans had a superiority of 5 to 1, with practically unlimited supply of ammunition.

The Allies had expected an attack for some time, as it was known that the Germans had 72 divisions in rear available for attack. On 9 July the French knew that an attack was imminent, and during the next few days detailed plans of the German attack were obtained by the French from prisoners. Marshal Foch therefore was able to make his plans accordingly. Colonel Grasset gives a detailed account of the attack, especially of the German 200th Infantry Division and the ten attempts which were made by this division before it succeeded in crossing the Marne. The French lost the first line of resistance, and the Germans were able to advance about 3 miles south of the Marne. The Allied artillery and air force saved the situation by a concentrated bombardment on the Marne bridges, destroying some and making it impossible for guns and ammunition to get across. A timely French counterattack on 18 July drove the Germans back across the Marne and thus began a series of Allied success, culminating with the armistice.

RIVISTA DI ARTIGLIERIA E GENIO (Italy)

By Major F. During, Infantry

October 1934

(1) POSSIBILITÀ DELL'ARTIGLIERIA DIVISIONALE. [Possibilities of division artillery.] Colonel Berardi

The author speaks of the changes that have taken place during the last two years about the employment of division artillery. He lays stress on the importance of close contact between division and corps commanders and their respective artillery commanders. In an attack in mobile warfare there will be three phases, which the author calls the megaphone phase, the telephone phase, and the phase of preparation for fire maneuver.

(2) CONCETTI DI COSTRUZIONE E DI MANOVRA PER IL GITTAMENTO DI UN PONTE VOLANTE. [Construction of a suspension bridge.] General Maglietta

(3) CALCOLI RELATIVI A RICOVERI ANTIGAS, MUNITI DI IMPLANTI DI FILTRAZIONE (RICOVERI FILTRANTI). [Theory of ventilating antigas chambers.] Captain Giardino

(4) LA PRODUZIONE DI ARMI E MUNIZIONI IN GERMANIA ED AUSTRIA-UNGHERIA NEI PRIMI DUE ANNI DELLA GUERRA MONDIALE. [Arms and munition production in Germany and Austria-Hungary during the first two years of the war.] General Bollati

Germany had a large number of private as well as government munitions factories, but had difficulties in getting sufficient rifles to meet the expansion of her army, and rifles of obsolete pattern had to be issued. It was also difficult at first to get sufficient artillery pieces, but captured field pieces in large numbers relieved the strain. Germany had no mountain guns or howitzers and they had to be constructed within a short time after the beginning of the war. In regard to explosives, the shortage of sulphuric acid and nitric acid and other essentials might have had disastrous results for Germany had the fall of Antwerp not released a large amount of material and if the chemical industry had not come to the rescue with important discoveries.

Austria was more handicapped than Germany at the beginning of the War, especially regarding rifles, but she was well provided with mountain artillery. A great shortage also existed in machine guns, field and heavy artillery as well as in nickel, copper, and lead, but the occupation of Serbia enabled Austria to make good the shortage. General Bollati points out the great advantage gained by the Allies by the entry of Italy into the War. The Italian front required such a large amount of munitions that Austria had to use the strictest economy on the Russian front.

November 1934

(5) NUOVE NECESSITÀ DELL'ARTIGLIERIA DIVISIONALE. [New duties for division artillery.] Colonel Biondi-Morra

The infantry of all modern armies is provided with an increased number of machine guns and "accompanying artillery." The introduction of these weapons throws extra duties on the division artillery, as does the presence of tanks on the battlefield. A list giving the strength of division artillery in certain foreign armies shows that the proportion of artillery to infantry is higher in France, Great Britain, Germany, and Yugoslavia, than it is in Italy.

(6) LA FORTIFICAZIONE CAMPALE IN COPERTARA. I CAPOSALDI DI MANOVA. [Field and permanent fortifications.] Major Montanari

(7) CONTRIBUTO DELL'OSSEVAZIONE E DELLA FOTOGRAFIA AEREA ALLA PREPARAZIONE TOPOGRAFICA DEL TIRO. [Use of airplane photographs by artillery.] Lieut. Colonel Liuzzi

Airplane photographs have certain inherent defects. Objects at a greater distance from the camera come out on a smaller scale than those near the camera, and the placing together of a mosaic is a matter in which absolute accuracy is impossible. The best kind of aerial photographs are those giving a stereoscopic effect.

ROYAL AIR FORCE QUARTERLY (Great Britain)

April 1935

(1) AIR DEFENCE OF GREAT BRITAIN. Wing-Commander Williams
(2) THE UNIVERSAL ARM. By "Quis"

- (3) COMMUNICATIONS AND THEIR SUSCEPTIBILITY TO AIR ATTACK
- (4) ORDERS ARE ORDERS
- (5) HOPE FOR THE LEAGUE OF NATIONS. AN APOLOGIA. Major Pemberton

ROYAL ENGINEERS JOURNAL (Great Britain)

March 1935

- (1) THE GANDAB ROAD. Lieut.-Colonel Wakely
- (2) AN ANTI-TANK EXERCISE. Lieut.-Colonel Fitzpatrick
- (3) AIR SURVEY. Lieutenant Salt
- (4) EARTHQUAKE RELIEF. Lieutenant Grove
- (5) A "MIX-IN-PLACE" ROAD. Major Orange-Bromehead
- (6) THE BATTLE OF HARBIN. Captain Davidson-Houston
- (7) TWO RAFTING EXPEDIENTS. Major White
- (8) A PORTABLE STEEL ROAD. (Professional Note)

ROYAL TANK CORPS JOURNAL (Great Britain)

February 1935

- (1) GERMANY'S "BLACK DAY." Captain Hickey
- (2) SOME FACTS ABOUT THE TERRITORIAL ARMY. Captain Custance

SANCT CHRISTOPHORUS (Germany)

By Captain G.B. Guenther, Cavalry

October 1934

- (1) NEUES ÜBER KAMPFWAGEN FREMDER HEERE. REORGANISATION DES ENGLISCHEN KAMPFWAGENKORPS. [New developments in combat vehicles in foreign armies. Reorganization of British mechanized units.]

British war organization contemplates the grouping of mechanized battalions into brigades which will become what today is called a General Headquarters reserve or a force at the disposal of the superior commander in the field. When the situation demands it, units of the mechanized force will be attached to the lower organizations for the accomplishment of specific missions and upon the completion of these the units are to revert to the control of the mechanized commander.

A brigade is to be composed of a staff, reconnaissance and antiaircraft sections, and four tank battalions. Three of the battalions are made up of organizations of mixed tanks, and one battalion is composed of light tanks.

The organization table of the light tank battalion provides for a staff and three companies of a total of 53 vehicles. Five accompanying tanks are included in this total.

A mixed tank battalion has a staff and three mixed companies. Each company has a section of light and a section of medium tanks. There are 25 medium tanks (five being accompanying) and 22 light tanks in the light battalion.

Recent experiments have produced a new medium tank which is of the Vickers type with the following characteristics: weight, 16 tons; speed, 20 miles per hour; armament, one 4.7-cm. cannon, 1 heavy machine gun, 2 light machine guns mounted in three turrets. Cruising radius 150 miles. All of the new types are equipped with radio sets. The accompanying tank is similar to the old Mark II but carries one 7.5-cm. cannon. The mission of these tanks is to disable hostile antitank weapons.

(2) DAS FAHREN VON KAMPFWAGEN IM WINTER. [The operation of tanks in winter.]

(3) UBER NEUZEITLICHE VERWENDUNG VON PANZERKRAFTWAGEN. [Concerning the modern methods of the employment of armored motor cars.]

England has taken the lead in the development of armored vehicles as well as in the methods of the employment of mechanized units and formations.

The British regulations and tables of organization published from time to time show a gradual improvement in her mechanized units. The development of the material, tactics, and technique through years of experiment has resulted in an efficient independent mechanized corps. Some authorities believe that such forces will be of great importance when employed at critical points to obtain rapid decisions and will reduce the possibility of stabilized warfare.

The powers and limitations of armored cars have been determined and have influenced the methods of their employment.

Effective well-aimed fire can normally be delivered when a vehicle is halted. It must depend on its speed and mobility for its safety and when within range of hostile antitank guns or artillery, positions must be changed often and rapidly. When hostile antitank weapons are encountered, one or several vehicles must be designated to so maneuver as to draw fire while the remainder of the cars move to the vicinity of the hostile guns to put them out of action.

The cooperation between the air arm and the armored cars is important, especially in verifying air information with ground reconnaissance by armored cars.

In some situations infantry in trucks should be sent with armored-car units to hold defiles or critical areas which, if held by the enemy, may prevent the passage or return of armored reconnaissance units.

Reconnaissance units normally avoid combat which seriously delays the accomplishment of their mission, seeking to detour to routes free of strong enemy forces.

The commander of reconnaissance units should take a position with his reserve at such a distance from the head of his formation as will enable him to determine the most suitable action or routes to be taken when contact is made with hostile forces. He evaluates the information sent in by the reconnoitering groups and insures that it is rapidly dispatched to the proper higher commander.

The British believe that when cavalry and armored-car units are employed in the same areas that they should operate at sufficient distances from each other to avoid interference.

The article further includes a discussion on armored-car missions and employment which generally agrees with American ideas.

(4) KAVALLERIE-VERBÄNDE GEGEN MOTORISIERTE KRÄFTE. [Cavalry units opposing motorized forces.]

This is an account of recent French maneuvers which definitely proved the vulnerability of motorized units when opposed by well-trained and well-equipped cavalry.

Modern French cavalry is capable of marching 40 to 50 miles a day. This arm has today become a vital mobile force better able to perform its pre-war missions and equipped to have great fire-power and mobility.

(5) "RUSSISCHE GEDÄNKEN ÜBER DIE ABWEHR VON KAMPFWAGEN." [Russian thoughts concerning antitank defense.]

The latest Russian views on antitank defense are expressed in this article.

The system developed presupposes a major tank attack in successive waves. There have been provided three classes of antitank weapons, as follows: those operating within the lower infantry units, those which are organic parts of higher units, and those available as reserves (these must be very mobile, preferably motorized).

The first antitank weapon to open fire on the attacking tank waves are not those with the front-line units, but those weapons of the higher units located in rear. Long range fire is placed on the hostile tanks when they first appear. The front-line antitank weapons to avoid being discovered

and drawing hostile fire withhold their fire until the advancing tanks come within effective range of these weapons.

Coordination must exist between the artillery and antitank batteries. A sufficient density of antitank weapons must be provided to insure that tank waves can not break through to the artillery position area. The writer is of the opinion that the present Russian organization does not provide a sufficient number of antitank weapons.

December 1934

(6) DIE ENTWICKLUNG DER GEPANZERTEN KRAFTFAHRZEUGE IN RUSSLAND. [The development of armored motor vehicles in Russia.]

Russia's plan for the modernization of her army was begun in 1928. Obsolete types of tanks purchased from England and France during the war were replaced by the modern and improved vehicles purchased from the British.

Since 1928, manufacturing rights have been obtained from the Vickers and Christie firms, and production of their models of armored vehicles in Russian factories has been satisfactory.

Experiments have been conducted with the British Mark V, as a result of which a new heavy tank has been developed with the following characters: weight, 80 tons; armament, 1 heavy antitank cannon and 4 machine guns all mounted in separate turrets; armor, 18-44-mm. in thickness; crew, 12 men; speed, 10 miles per hour. Twenty-five vehicles of this type are in use in the army.

Armored cars of the light type, utilizing the Ford chassis, have been produced, and the reconnaissance units are equipped with them.

(7) UBER DIE VERWENDUNG DER ENGLISCHEN KAMPFWAGEN IM WELTKRIEGE. [Concerning the employment of British tanks in the World War.]

An historical sketch showing the dates, location, and the employment of British tank units in the World War.

(8) MOTORISIERTE PANZER-TRUPPEN BEI DEN DIESJAHRIGEN MANOVERN FREMDER HEERE. [Motorized and mechanized troops in the 1934 maneuvers in foreign armies.]

Great Britain.—In a series of experimental maneuvers the British last year employed their mechanized units on numerous types of missions.

The method of the employment of the newly organized mechanized brigade is worthy of note. On one maneuver the mission of the brigade was to move around the enemy flank and attack a city which was a critical point on the hostile supply system. The attack on this city was conducted by the four tank battalions (one light battalion and three mixed medium battalions), as follows: the light tank battalion was sent in advance of the main attack to barricade the roads leading to the city from the directions from which hostile reinforcements could arrive. The medium tank battalions attacked in waves from three different directions. The waves were generally composed of two light, two medium and accompanying tanks (these carried heavy antitank weapons). The barricading mission when completed by the light battalion was changed to a mission of security on the flanks and rear of the attack formations.

Mechanized units were included in landing operations in which were encountered the difficulties of loading and unloading these vehicles.

Armored-car units were employed with cavalry on distant reconnaissance missions to locate the hostile mechanized forces. When these were located the armored cars were employed on delaying and security missions.

France.—Tanks and armored cars were utilized by both forces during the annual maneuvers. Fast tanks were employed with front-line troops in the attack which was also supported by the heavy tanks. The second line and reserve units were supported by light tanks.

Italy.—The new light division recently organized has been so equipped as to be very mobile and capable of striking rapidly.

It is composed of cavalry, infantry in trucks, motorized artillery, and fast tanks. Its mission is to surprise the enemy, determine his size and location and then by maneuvering prevent hostile reconnaissance and delay his advance. When the main forces are engaged it is contemplated that the light division be used to protect the flanks, as a reserve or to decide the action at critical points.

Italy's new light fast tanks proved very effective in varied situations.

SIGNAL CORPS BULLETIN

January-February 1935

(1) EXTRACTS FROM THE REPORT OF THE SIGNAL OFFICER GHQ, GHQ COMMAND POST EXERCISES, SEPTEMBER 2-8, 1934. Colonel Allison

(2) FUNCTIONS OF THE OFFICE OF THE CHIEF SIGNAL OFFICER IN TIME OF PEACE. Lieut.-Colonel Olmstead

(3) STRATEGIC SIGNAL COMMUNICATION—A STUDY OF SIGNAL COMMUNICATION AS APPLIED TO LARGE FIELD FORCES, BASED UPON THE OPERATIONS OF THE GERMAN SIGNAL CORPS DURING THE MARCH ON PARIS IN 1914. Major Evans

VETERINARY BULLETIN

(SUPPLEMENT TO THE ARMY MEDICAL BULLETIN)

April 1935

(1) SWIMMING ANIMALS. Major Stewart

(2) A ONE-THOUSAND-AND-FIFTY-MILE MARCH WITH THE INFANTRY. Major King

(3) OBSERVATIONS ON PACK TRANSPORTATION DURING A TRANS-ISTHMUS MARCH OF THE SECOND FIELD ARTILLERY. Lieutenant Owens

WEHR UND WAFFEN (Germany)

By Major F. During, Infantry

October 1934

(1) UEBER DEN ABGANGSFEHLER EINES GESCHOSSES INFOLGE VON SCHIFFSBEWEGUNGEN. [Departure errors of a projectile due to the motion of a ship.] (II) Dr. Hänert

(2) FRIEDENSAUSBILDUNG—KRIEGSERFAHRUNG. [Peace training and war experience.] (II) Lieut.-General Marx, Retired

General Marx continues his artillery reminiscences. His memory of detail and of the smallest happenings in 1914 and 1915, when he was commanding a battery, makes a vivid picture. He recalls everything from fire orders to the thrill of seeing a French line of skirmishers debouch from a wood and advance directly toward his guns, at a time when the German infantry had not arrived. He points out the inaccuracies on maps. When he speaks of errors and omissions of the French artillery, he softens his criticism by referring to the battery commander opposite him as "my colleague."

(3) TECHNIK UND TAKTIK DES KANONENFLUGZEUGS. [Technique and tactics of a gun-carrying airplane.] By "G. v.M."

The French technical press has been occupied for some time with this subject, and opinions vary, always excepting one point of universal agreement, and that is that for any use of the "airplane-gun," except firing in the direction of flight, owing to the great effect upon the trajectory which is due to the airplane's motion, we are not yet sufficiently prepared. The whole question has been handed over to a Technical Commission to work out, but meanwhile practical trials with planes having a forward gun built in, under the limitation mentioned, have been successful. The gun and engine are organically connected. The best plane is said to be the Hispano-Suiza, 12-cylinder, weight with gun and ammunition,

½-ton. The gun is a 20-mm. weapon, firing all kinds of projectiles, e.g., incendiary shell, with a rate of fire similar to that of machine guns also firing through the nave of the propeller. The gun with 60 rounds of ammunition weighs the same as two Vickers-Maxims with their normal load of ammunition. The gun takes up less space than the two Vickers, and hence is specially suitable for small planes. Tracer ammunition is used for fire correction.

(4) ARTILLERISTISCHE BEKÄMPFUNG VON KAMPFWAGEN-ÄNGRIFFEN. [The employment of artillery against tank attacks.]

The unknown author concludes that the direct fire of single guns will not stop tanks, but will make them change direction and increase their speed. Therefore, when attacking tanks appear, a barrage should be laid in their direction of advance, in which all batteries should take part. This will mean dispersed fire, oscillating fire ("tir fauchant"), very rapid fire and—much ammunition.

(5) FRANZÖSISCHES UND AMERIKANISCHES SCHIESZVERFAHREN ZUR ABWEHR VON KAMPFWAGEN. [French and American methods of defense against tanks.] By "S"

The difference between French and American methods arises from the nature of the antitank weapon used, the assumed speed of the tank (France, not more than 8 miles per hour; United States, 24 miles per hour), and different ideas of the reliability of the human factor. The American method stands and falls by the high degree of training and other high qualities of the gunner, who has to observe at 1,500 yards the burst of his first round, then work out and apply the necessary correction. The French method makes less claim upon the individual. It is based upon key-ranges, dropping 200 yards at a time. This "mechanized" shooting is more wasteful of ammunition, as the first round fired at a tank as it passes from one zone into the next will always be short. These methods are of special importance because tanks and antitank guns will always be found at the very center of where the decision takes place.

(6) FLUGZEUG-KANONEN. [Airplane guns.] Colonel Blümner, Retired

It is no longer a question whether airplanes should be armed with guns, but what guns should be used and how. In this article Colonel Blümner covers the entire subject: the airplane gun's inception in the World War; its development dropped at return to peace; the subject re-raised owing to the air maneuvers in Great Britain, France, and Italy having shown that there was no satisfactory answer to the attacks by large bombers; hence the necessity for the single-seater fighter to carry a gun firing an explosive shell, thus becoming, as "Les Ailes" says, "the unlimited ruler day and night of the space through which it flies"; the consequent extension of the gun to all airplanes, except perhaps reconnaissance machines, and the present state, patterns, and details of the airplane gun among the leading countries, especially in France and England.

(7) BEI DER 5. ENGLISCHEN ARMEE AUSGEFÜHRTE SPERREN UND ZERSTÖRUNGEN WÄHREND DER FRÜHJAHRSSCHLACHT 21.—27. 3. 18. [Demolitions carried out by the British Fifth Army during the battle of 21-27 March, 1918.] (1) Colonel Wabnitz, Retired

This article is based on General Buckland's study, "Demolition Fifth Army, 1918," published in the "Royal Engineers Journal," March, June, September, 1933.

December 1934

(8) BETRACHTUNGEN ÜBER DIE ENTWICKLUNG DER ARTILLERIE. [Thoughts about the development of artillery.] Captain Vieser

Considering the various new tasks which the artillery of the future will have to perform, and the lack of war experience with the much improved weapons of today, a certain restraint in providing new armament for the artillery is justified. The most important tactical demands, like great speed and cross-country powers, high state of fire-preparedness, and rapidity of fire, must not be gained at the expense of fire effect and accuracy. Every solution will thus be of the nature of a compromise. Captain Vieser gives

a list of the types composing the United States artillery of today as showing better the trend of modern artillery development than those composing the artillery of any European power.

(9) KAMPFWAGEN-ABWEHR. [Antitank defense.] Major Schneider, Retired

The author thinks that the neglect of this subject contributed to a great extent to Germany's defeat in the last war, and that antitank defense is perhaps the most important branch of Germany's future weapon technique. He examines the conditions of a field artillery barrage laid down at 3,000 yards and, allowing 20 yards of front to each gun, he finds that the tanks will pass through this barrage in exactly 30 seconds, so that the chance of any one tank being hit is .2%, or .8% if four rounds per gun are fired. He concludes that the only effective antitank defense lies in aimed and observed fire.

(10) BEI DER 5. ENGLISCHEN ARMEE AUSGEFÜHRTE SPERREN UND ZERSTÖRUNGEN WÄHREND DER FRÜHJAHRSSCHLACHT 21.—27. 3. 18. [Demolitions carried out by the British Fifth Army during the battle of 21-27 March, 1918.] (II) Colonel Wabnitz, Retired

WISSEN UND WEHR (Germany)

By Captain G.B. Guenther, Cavalry

October 1934

(1) DER PSYCHOLOGISCHE FAKTOR IN DER WEHRWISSENSCHAFTLICHEN FORSCHUNG. [The psychological factor in the research on the science of war.] Simoneit

(2) WEHRSORGEN FRANKREICH'S. [Preparedness problems of France.] Major General Wagner

France as a member of the League of Nations has recently become very quiet on matters of disarmament, but on the other hand, has expressed her ideas on preparedness through her military and technical journals. Three main issues which have caused the nation greatest concern in its national defense problems are:

(a) How can France overcome the shortage of man power within a certain bracket of ages caused by the losses in the World War?

(b) Will a citizen army of soldiers with only one year's service suffice as a defense system for France?

(c) Should the inclusion of colored troops be a part of the national defense or remain wholly a part of the colonial defense.

Considering normal losses and disability, France will have available for military service in estimated eligibles 80,000 men per year for the next six years. From a recent survey it has been determined that she now has more than five million trained reservists which can be called out in case of an emergency.

Two propositions are being considered by the advocates of French preparedness, which are: first to include in France's national army sufficient colored units (from colonies) to take care of the shortage due to war losses, and second, to lengthen the period of service of the present army to two years or longer period, according to whether or not a soldier is married and has the responsibility of supporting a family.

The French War Ministry is confronted with unemployment on the one hand and the tax burden of a large army on the other. The author contends that France need not be alarmed, since her neighbors who could in any way approach or equal her present military strength are limited by the Versailles Treaty. France is using every pretext to strengthen and enlarge her national defense system.

(3) DIE FREMDEN MARINEN IM SOMMER 1934. [The foreign navies in the summer of 1934.] Admiral Gadow

(4) DIE EIGENART DES MEERES ALS KRIEGSSCHAUPLATZ UND DIE FRAGE DER ENTSCHEIDUNGSSCHLACHT ZUR SEE. [The characteristics of

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the sea as a theater of operations and the question of a decisive battle thereon.] Admiral Donner

(5) DIE UNTERWERFUNG MAROKKOS DURCH FRANKREICH. [The subjugation of Morocco by France.] Colonel v.Xylander

The year 1934 marked the close of French military operations which resulted in the subjugation of the Sultanate of Morocco.

The French-British agreement of 1904 gave France a free hand in this country, and she lost no time in strengthening her position. In 1911 when Germany made a bid for territory in Northern Africa, a second agreement was made, giving France the right to establish a protectorate.

In the course of the French occupation numerous expeditions were sent to the interior, the most important being that sent to Fez. The well-equipped invading army soon defeated the hostile tribal forces and built military posts to which railroads and roads were constructed for the purposes of supply and communications.

In 1912 Marshal Lyautey was placed in command of the territory and attempted to conduct a peaceful regime. Conferences were held and alliances were made with tribal chiefs which spared many lives and avoided destruction of property. French control gradually spread to the foothills of the Atlas Mountains. In return for loyal support from friendly tribes, Lyautey agreed to give protection against bands of the lawless mountain chiefs. To insure this protection a series of frontier posts were built and garrisoned.

In 1925 a change in military commanders resulted in several major uprisings—that of the Riffs being particularly serious. Lyautey's peaceful occupation had ended, and France now resorted to military force on a large scale.

The author points out that France's policy in Morocco is to colonize without populating the country. This has resulted in the appointment of French officials who do not understand the people and their problems. It is seriously questioned as to whether a colonial government established and maintained by military force and with such a policy can continue without serious internal strife.

(6) DIE ENDGÜLTIGE BEFRIEDUNG MAROKKOS DURCH DIE FRANZOSEN. [The pacification of Morocco by France.]

(7) DAS PANARABISCHE PROBLEM. [The Pan-Arabian problem.] Dr. v.Engelmann

November 1934

(8) DIE WEHRMACHT IM NEUEN STAAT. [The army of the new state.] Major Jost

The author traces the position of the army through the periods of the development of the German Empire. The army was recognized as the backbone of the government and without its loyal support rulers felt insecure.

Adolf Hitler, the Chancellor of the Reich, realized that he would be greatly handicapped without the support of the armed forces and required them to take an oath of allegiance. This in many respects is similar to the obligations of the army to the emperor during the regime of Frederick the Great.

The rapid spread of socialism in the military as well as the civilian population has greatly reduced the barriers which had existed between the two during the monarchy. Interest in political questions both national and international has taken a new turn, and the masses are concerned with issues which may affect the present and future of the Reich. The author contends that the army as a whole should acquaint itself with the vital political issues of the day so that its leaders can strive for the best interests of the nation in future military operations.

(9) KRITERIEN UNSERER WEHRPOLITISCHEN LAGE. [The criterion of our political-military situation.] Lieut.-General v.Metzsch

A discussion of Germany's political views on the national defense problem in comparison with the movements supported by the people of other countries.

(10) ZUM MEINUNGSSTREIT ÜBER DEN VERNICHTUNGSGEDANKEN IN DER KRIEGSFÜHRUNG. [The conflict of opinion concerning annihilation in warfare.] Linnebach

German military history is replete with historical examples in which the basic principles of annihilation warfare were employed. Such leaders as Frederick the Great, Blücher, Gneisenau, Moltke, and Hindenburg became famous in their successful employment.

Texts based on the teaching of Clausewitz on this method of warfare became the doctrine of the German General Staff of the eighteenth century. Later Graf Schlieffen revised these military manuals and the precepts contained therein were passed on to the German Army of the World War period.

Methods and tactics of annihilation warfare were practiced by the Allies as well as the German forces in the World War. The spirit of destruction was not limited to the battlefields but was recognized on the high seas in the submarine and commercial warfare.

The modern improvements in arms and methods of warfare have been made with a view to accomplishing the object of war, the destruction of the enemy's armed forces. The eighteenth century spirit of annihilation still lives. The leading nations of the world are striving to render their future enemies incapable of armed conflict and have developed plans which in case of future hostilities will result in economic, industrial, and commercial warfare.

(11) DIE ABWEHR SCHLACHT KREWO—SMORGON VOM 19. BIS 26. JULI 1917. [The defensive operations of Krewo-Smorgon, 19-26 July, 1917.] Lieut.-Colonel v.Strube

This is an account of one of the campaigns conducted during the Kerensky offensive of 1917.

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(12) DER WEG ZUR MARINEKONFERENZ 1935. [The way to the Naval Conference, 1935.] Admiral v.Freyberg-Eisenberg

(13) DER ÄLTERE MOLTKE UND SCHLIEFFEN. [The elder Moltke and Schlieffen.] Dr. Blau

This is a discussion concerning the German war plans sponsored by these military commanders and the effects which the changes in these plans had on the preparation for, conduct, and results of the World War.

(14) DAS WEHRPOLITISCHE KERNPROBLEM DES 19. UND 20. JAHRHUNDERTS. [The political-defense issues of the nineteenth and twentieth centuries.] Schmittenhener

This is a resumé of the development of the foreign and domestic influences which molded the German political issues of the nineteenth and twentieth centuries.

(15) DAS FERNSPRECH- UND TELEGRAPHENWESEN WÄHREND DER RUSSENFÄLLE 1914 IN OSTPREUSSEN. [The telephone and telegraph systems employed during the Russian invasion of East Prussia in 1914.] Lieut.-Colonel Kleindienst

(16) DIE MEERENGENFRAGE. [The Dardanelles question.] Captain Schüttel

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(1) THE TREND TOWARD DICTATORSHIP IN JAPAN. Bisson

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(2) INTERNATIONAL ADMINISTRATION OF NARCOTIC DRUGS, 1928-1934. Moorhead

13 March 1935

(3) BRAZIL'S POLITICAL AND ECONOMIC PROBLEMS. Davis

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(4) UNREST IN THE VIRGIN ISLANDS. Evans

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(5) AMERICAN NEUTRALITY IN A FUTURE WAR. Briggs and Buell

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(6) THE AAA AND EXPORTS OF THE SOUTH. deWilde

Section 5
ACADEMIC NOTES, C. & G.S.S.

REPRINT OF CURRENT SCHOOL MEMORANDA, WHICH AFFECT
INSTRUCTIONAL PROCEDURE OR TACTICAL DOCTRINES.

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**INFLUENCE OF TERRAIN ON THE ASSIGNMENT OF
COMMAND AREAS AND BOUNDARIES**

[Memorandum of 16 November, 1934]

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1. **INFLUENCE OF TERRAIN.**—The location of the boundaries between the command areas of units in attack or defense is one of the elements of a plan of tactical action. As in other aspects of tactics, the influence of terrain is important, though it must be weighed in connection with other considerations; conflicts with other important considerations may make it impracticable to comply with the principles enunciated herein, or may result in a compromise, with partial compliance. This discussion is designed to show in what way the selection of boundaries is influenced by considerations of terrain.

2. **UNITY OF EFFORT.**—*a. Need.*—Since the effective power exerted by a group of forces varies directly with the degree of unity existing among the efforts put forth by the forces composing the group, it is necessary that all the efforts of a military force be united to attain a single end, to execute the will of the commander.

b. Division of responsibility and authority.—The component elements of a command operate in separate though generally adjacent areas with somewhat differing missions. When a commander is given a mission he receives a responsibility; he should at the same time be allotted the necessary means, including the full authority to control all of the material means utilized in a given area. Between adjacent areas, it is evident that there must be no misunderstanding as to the division of authority and responsibility, in order that there may be no conflict or interruption. Therefore, it is necessary to define boundaries of the command areas, that is, boundaries lying between zones of action or sectors. And, since boundaries tend to be lines of weakness, it is further necessary to provide for unity of effort at boundaries between the adjacent components of the command.

c. Methods of obtaining unity of effort.—*Cooperation and coordination.*—Unity of effort is obtained by two methods; cooperation, or the voluntary

action of two forces toward a common end; and coordination, or the directing of two forces toward the common end by a commander closely in touch with the situation of both. Unity is at its best when both are employed together. However, although coordination is a positive element obtained through the operation of the system of command, cooperation, on the other hand, which depends upon individual and separate wills, is a doubtful element. Lack of cooperation was evidenced in the World War in many cases in which, rightly or wrongly, commanders attempted to justify their own failures by blaming their neighbors.

In the smaller organizations, such as those comprised in a battalion, cooperation and coordination are both employed to weld each organization into one effective unit. Between somewhat larger organizations, such as the battalions of a regiment, coordination operates effectively, though not quite so well. But between adjacent units of still higher commands the distance of the common commander makes it considerably more difficult for him to coordinate their efforts, and this difficulty increases as the scale of command is ascended, so that unity of effort between the adjacent units of the higher commands is more and more dependent upon cooperation. Yet cooperation is admittedly difficult to secure. Therefore we reach the conclusion that boundaries should be so placed as to include within any given command area the parts of the terrain in which unity of effort is particularly desired.

3. OFFENSE.—*a. Boundaries correspond with the edges of routes of approach.*—Let it be assumed that the decision to attack has been made, and that the general location, direction, appropriate frontages, and routes of approach of the main attack and subsidiary attacks have been decided. In the selection of the route of approach, the considerations with reference to the corridor of terrain have been weighed, and a corridor has preferably been chosen. The terrain features (ridges, woods, or the like) inclosing the corridor, limit the enemy's observation and direct fire upon the area within the corridor from points outside it. Thus the unit within the corridor is able to concentrate its efforts upon the enemy defenses within the corridor. Each commander should, at the same time, be assigned the responsibility, together with the necessary forces and authority, for neutralizing the enemy's observation and direct fire from points within his approach. In short, the boundaries of the zones of action should correspond generally with the edges or limits of the route of approach of each element of the attack. In so far as practicable, the boundaries between smaller units included in the larger elements of the attack should follow the same principle.

b. Physical location.—If the route of approach is a terrain corridor and that corridor is in turn a valley, the boundaries will naturally fall along the crests of the ridges on each side of the corridor. If a woods forms one of the limiting features, the zone of action should include that portion of the margin of the woods from which the enemy can fire directly into the corridor.

c. Doubtful cases.—When there are any questions of doubt, or if the route of approach is other than a corridor, the selection of the boundaries should conform to the general principle that an attacking unit should, if practicable, be given the command and responsibility for areas from which it is liable to be subjected to enemy direct fire or enemy terrestrial observation.

For example, the basic consideration of bringing a preponderance of strength to bear may, as an exception, indicate the desirability of directing the main attack along a ridge, with the boundaries along the valleys. Suppose the terrain consists of broad, fairly open ridges separated by narrow valleys. In this case the commander may, in order to make his own strength effective, accept the disadvantage of having to overcome a wider front of enemy observed fire. No terrain is likely to be ideal, and the problem is to make the best use of the existing terrain. It is a question of understanding it—of realizing the relative advantages and

disadvantages—and planning so as to secure the greatest advantages combined with the least disadvantages.

d. Boundaries conform to the contemplated maneuver.—Question may arise as to the proper location of a boundary in that part of the terrain of attack in which the attacker reaches an important and vital objective which it is necessary to take. The objective may be a ridge, which would ordinarily be the limit of a corridor and hence a suitable location for a boundary. In such case the question arises as to whether the objective should be divided between two units or should be assigned to one unit. The answer should be sought in a consideration of the manner in which it is desired to operate, in the plan of maneuver. The boundaries will then fall into place naturally; they do not control the maneuver, but depend upon it. Accordingly, whether the zone of a definite unit should include the important objective in question will depend upon whether that unit is to have sole responsibility for capturing it; if such is the case, the objective would be placed entirely within the zone of action of the unit; if more than one unit is to cooperate in the capture, the objective would be divided between their zones of action. Thus, the boundaries are graphical details making clear the scheme of maneuver contemplated by the commander.

e. Boundaries in a wide envelopment.—It is necessary for the higher commander to indicate zones of action in detail (by boundaries) only when units are so close together that there may be doubt as to where the responsibility of one commander ceases and that of the neighboring commander commences. In the case of a wide envelopment, there will not ordinarily be doubt as to whether the commander of the enveloping force or the commander of the holding force is responsible for overcoming any particular enemy resistance that may develop during the greater part of the attack, and no doubts will arise until such time as their convergent lines of action bring them close together. Accordingly, no useful purpose would be served, in the earlier stages of the attack, by prescribing a boundary between these two forces, and the development of the last stages can not be predicted with sufficient accuracy to enable the higher commander to prescribe in advance the coordination that may then be needed. Hence, in the usual case, it will be unnecessary to prescribe, in the initial orders, a boundary between the enveloping force and the holding force. Initial coordination between these two forces may be indicated by prescribing terrain objectives and general directions of advance thereto, or merely directions of attack.

4. DEFENSE.—*a. Selection of localities for defense.*—In general, though the purpose of attaining unity of effort is the same in the offense and defense, many of the considerations with respect to boundaries in the defense are not the same as in the offense, and in order to reach a conclusion it is necessary to review some of the principles of the defensive. Since the attacker seeks to strike a weak spot, the defender endeavors to so cover his weak spots that the attacker can not break through. Accordingly, the defender analyzes the attacker's capabilities of action and so disposes his means as to meet the attacker in the manner most favorable to the defense. The best defense, like the best attack, utilizes surprise, and so is based on applying fire from a flank. The defender wishes to commit the minimum necessary force to holding localities, and to hold out the maximum, as reserves, to give mobility, flexibility, and elasticity to the defender. He therefore looks for a line of localities along the front which can be held initially by small forces, and which will enable him, by flanking fires, to command the attacker's approaches. The force utilized to meet the enemy head-on between the flanking localities at each line of approach will vary with the nature of the ground (fields of fire from the flank), the degree of visibility (fog, smoke, darkness, rugged or open ground, presence or absence of woods), and with the presence or absence of artificial fog. The desire is to check the enemy with a minimum force in front of the approaches, and to destroy him by fire from the flanks. Thus the defense endeavors to make the advantages of terrain compensate for relative weakness in numbers.

The localities thus selected are those areas the retention of which will insure the essential integrity of the position. The size of the unit charged with holding one of these localities will of course vary with the size and the tactical importance of the locality. These localities will usually include the high ground, since the high ground includes the element of observation (of at least local importance) enabling the defender to command the enemy's approaches, and since in the usual case it is difficult to hold the low ground if the enemy possesses the high ground alongside it.

b. Holding tactical localities as shoulders.—It is admitted that the offense can, in his main attack, concentrate a superior force against almost any part of the defensive line that he may select. Therefore the commander of the whole defensive force does not rely upon the front-line units alone to insure that this main attack is stopped. It is the reserves that are relied upon, ultimately, to stop or repulse the attack. However, though some front-line units will usually be driven out or destroyed, the defender can reasonably expect that most of the localities will be held and that the enemy attack will be limited in depth and will be checked long enough for the reserves to arrive. Since an enemy penetration is limited in depth unless it can widen the base, the defense tries to prevent the widening of the base by holding the shoulders on both flanks of the penetration.

Thus, it is not the expectation of the commander of a front-line locality to prevent a penetration of any kind whatsoever; for it is admitted in advance that he can not do this. His expectation is rather to hold his locality. He checks and limits the penetration, not primarily by getting in front of it, but by holding the shoulder.

c. Command of each locality—location of boundaries.—Since the basic idea contemplates a line of tactical localities to be held, there should be one commander in charge of each front-line locality. The boundaries then fall naturally between them. Since the localities usually include the high ground, the boundaries usually will fall between the higher places—within the valleys.

d. Detailed location of boundary.—Since a valley is not a line, but an area, the question arises as to where the boundary should be placed within the valley. Though mutually supporting fires are laid across boundaries, and both adjoining units cooperate in the defense along the boundary, there should be, for reasons previously presented, a definite limitation of authority and responsibility.

In order to arrive at a reasonable conclusion with respect to the detailed location of the boundary, that is, to reach a conclusion consistent with the previously-expressed reasons for putting the boundary in the valley, the reasoning should be based on the same theory of the defense.

If one commander is to be responsible for holding a given locality, he should have the responsibility for defending the avenues of approach to it. Thus one of the guiding considerations in deciding on the boundary between the tactical localities is to assign, to the commander who would be most menaced by a penetration between these localities, the responsibility for defending the approaches that might be used to attack him. This means that usually the boundary will not fall down the middle of the valley, but along one side or the other of the valley.

The valley corridor usually contains an axial stream which is frequently fringed with woods, the stream gully and woods together constituting a smaller and favorable route of approach within the larger one. There should be no question of responsibility for this wooded approach; it should be assigned definitely to one commander or another. Furthermore, it is preferable that the boundary be placed upon open terrain forming a good field of fire for the mutually-supporting crossed fires of the occupied localities. These reasons will usually reinforce the conception of placing the boundary along one or other slope of the valley, or, otherwise expressed, one of the slopes of the ridges on either side.

For the above reasons, it is usually preferable, when in defense, to avoid placing a boundary within a woods or village.

e. Disadvantages of boundaries along the ridges.—If, contrary to the above considerations, the boundary lines in defense were placed along the ridges, the defender would be confronted with a number of serious difficulties. It would be difficult or impossible for the organized tactical localities, with observation and field of fire limited by the ridges on each side, to provide all-around defense. The organized portion of the command area would tend to center in the low ground and therefore to give up the observation. Due to the intervening crests at the boundaries, the unit would have great difficulty in firing to support its neighbors effectively, and might find it impossible to do so.

As soon as one locality fails, the offense has an approach free from flanking fire through which it can progress through the front line and out-flank the localities on either side. If one commander is to be responsible for holding a given area, he should be given the responsibility for stopping an attack on that locality, no matter from what direction it may come. If his area includes only the low ground between the ridges, the failure of a neighboring commander will give the enemy a covered approach to his flank and rear on which he can place no fire.

f. Boundaries at the longer ranges.—The preceding considerations apply particularly to the close-in defense of the position, that is, to those portions of the boundaries within the position and at the shorter ranges to the front. However, after boundaries for the close-in defense have been laid out in accordance with the principles outlined, it may be found that their continuation to the front, at the longer infantry ranges, involves other difficulties. For example, it frequently occurs that a ridge lying approximately in prolongation of the boundary is so located that the two units separated by the boundary can each fire on one side of the ridge but not on the other. Under such circumstances it would obviously be illogical to place the boundary on one slope or the other, but along the crest. In general, therefore, the boundary at such longer ranges will frequently fall along the crest of a ridge.

Still farther to the front, where the boundaries are intended primarily to coordinate the fires of artillery, the location of the boundaries will be influenced largely by the locations of possible enemy approaches, it being desirable to assign to a unit the approaches which lead to its defensive area.

g. Grouping of localities into larger commands.—It is not a matter of great difficulty to determine the size of the garrison appropriate to hold any one locality (shoulder), due consideration being of course given to the frontages appropriate for particular units. But the question now arises as to how to determine which of the given series of localities shall be organized together under one (higher) commander, and so locate the boundaries between the higher commands. The answer to this is found, again, in the application of the principle of unity.

As previously stated, the power exerted by a given force is proportional to the degree of unity existing in the efforts of its components. Dispositions have thus far been made to secure unity of action in holding each shoulder. Provision must now be made to obtain, as far as practicable, unity of action among the elements defending the shoulders which stand at the flanks of each approach; this can be done by linking them together under one (higher) commander. As all approaches can not be so defended without subdividing the command of the adjacent shoulders (which has been shown to be undesirable), it is necessary to make a selection. This is done by assigning to each approach a priority of importance, based on differing degrees of danger to the defense, and by combining the units defending the shoulders of the most dangerous approach so as to form a single (higher) unit, standing across it, and with its flanks clamped to the adjacent shoulders. A similar combination is followed with other units on the shoulders bordering the approaches of lower priority. This

process is of course subject to adjustments; for example, if four units, A, B, C, and D, in order, lie across a front, with A and B combined across the most important corridor, then C and D must usually combine even though the approach of second priority fall between B and C.

It may be considered that this clamping process commences with the smaller units, thereby adding to the unity of the defense and to its flexibility and elasticity, and extends to the larger units. Thus, so far as other factors permit, the areas of platoons on the very small shoulders are combined into company areas to bar the approaches between these shoulders; company areas are combined into battalion areas, and the larger units are combined to form larger tactical localities.

While in the preceding discussion, the method of reasoning has proceeded from the smaller units to the larger, the usual procedure, in a deliberately assumed defense, is the reverse. However, the principle to be applied is the same—to secure unity of command of the localities which it is essential to hold. For instance, the army commander may designate the general line of defense by naming a number of large terrain features or areas and making sure that these areas fall wholly within the sector assigned to one corps. In a similar manner, the process is then extended to the smaller units, each successive subordinate commander prescribing the line in more detail and insuring compliance with the principle of unity of command for the localities which he deems it essential to hold. In the larger units an additional measure to prevent outflanking of front-line localities is the provision for switch positions. Switch positions are generally so located as to defend the critical front-line areas from flank attack in case of a penetration.

5. SUMMARY.—The assignment of command areas, and the delimitation of authority and responsibility between them by means of boundaries, must be based upon a consideration of the critical localities or areas in which unity of command is most important. In attack, the critical areas are usually the routes of approach, the boundaries being, in general, so arranged as to include within the zone of advance those localities from which hostile observation and fire by direct laying can be placed upon the path of the maneuver. In defense, the critical areas are ordinarily the tactical localities or key-points which it is important to hold, and the boundaries should be so located as to include in the sectors the possible routes of hostile approach which menace it most seriously.

RETIREMENT, DELAYING ACTION, AND WITHDRAWAL FROM ACTION

[Memorandum of 20 March, 1935]

1. The term "Retrograde Movement" is a general one, employed to designate the movement of a command to the rear. The movement of a command to the rear may be referred to as a "Retirement," a "Withdrawal from Action," or a "Delaying Action." These terms indicate simply variations in execution of a retrograde movement. Each of these variations has some points in common with the others. Each of them possesses elements of the defensive. Each of them contemplates movement to the rear. There is, therefore, no marked distinction between them, and they all belong to the same general class of military operation.

The method of executing a retrograde movement is based primarily on a consideration of the enemy situation, the terrain, the situation of the force making the movement, and the purpose of the movement.

A retrograde movement may commence with a withdrawal from action, followed by a retirement, and then by a delaying action.

A retrograde movement habitually requires the employment of a covering or security force, the method of its use depending on the character of the rearward movement and on enemy action.

2. A *retirement* is a retrograde movement in which the force making it seeks to regain freedom of action, the movement being part of a well defined plan which has for its purpose the refusal of decisive combat under the situation that exists at the time. It conveys the idea of limited distance with full coordination and control.*

A retirement may be made in one stage or in several stages, depending on the distance involved. It habitually involves the employment of a covering force but does not necessarily imply combat in each successive stage. Nor does it necessarily commence with a withdrawal from action, although such is usually the case. If in contact with the enemy, however, and a retirement is initiated, the withdrawal from action becomes the initial phase of the retirement.

The gaining of time is not the predominant purpose as it is in the delaying action, though the security force may be compelled to engage the enemy in order to gain time and space for the retirement of the main force.

In a retirement the time the force is to reach and leave each successive stage position in rear can usually be determined and the complete plan can be stated in the orders for the movement.

A retirement is made for such purposes as to avoid a decisive engagement, to attract the enemy in a direction unfavorable to him, or, after a defeat, to gain time and space for reorganization and regrouping of forces preparatory to renewed efforts against the enemy.

3. A *withdrawal from action* is a retrograde movement by which all or a part of a deployed force breaks away from an engagement or from immediate contact with an enemy. It is the initial phase of a retirement or a delaying action, is executed in accordance with a definite plan and usually is made for the purpose of improving the tactical situation or dispositions of a command, or to initiate a further movement of the command to the rear.

To put it another way, it is resorted to by a commander usually for the purpose of regaining his liberty of action by placing distance and a covering force between his principal forces and the enemy and for the purpose of preparing for further action under more favorable conditions.

The withdrawal from action is an extremely delicate operation, always costly and dangerous, and which requires from the commander simple and rapid decisions. When practicable a withdrawal from action is made under cover of darkness. When the withdrawal from action is the initial phase of a retirement, the commander can, as a rule, select the time for the commencement of the movement.

A withdrawal from action is executed in accordance with a definite, carefully coordinated plan. After it has been completed, any further movement to the rear becomes a retirement or a delaying action.

4. A *delaying action* is a retrograde movement which is designed to prevent the uninterrupted advance of a superior enemy. The underlying principle of a delaying action is to gain time without fighting a decisive engagement. To accomplish this object the troops hold defensively either a single position or successive positions. A delaying action is a type of retrograde movement decided upon deliberately and under a definite plan carefully prepared which contemplates the maximum of coordination. The maximum amount of time is gained by blocking the advance of the enemy, forcing him to maneuver, to reconnoiter, and to deploy.

A delaying action in successive positions consists of a series of coordinated withdrawals and may be termed the typical delaying action. The command or portions of it is deployed successively on one position after another in such a manner as to force the enemy to deploy for an attack

*A retirement is not necessarily synonymous with a "retreat," as the latter implies a hurried movement to the rear necessitated by enemy action and without complete control. A retreat conveys the impression of considerable distance.

against each position in turn, the defender withdrawing before becoming seriously engaged.

In a delaying action the time the force is to reach each successive position beyond the first one can not usually be foreseen, as it is governed by the action of the enemy. A complete plan can not therefore be announced in the original orders for the operation.

In a delaying action in successive positions the gaining of the maximum delay may make desirable the use of demolitions and obstacles throughout the entire course of the operation. As the purpose of a retirement is to gain distance from the enemy, they may be used extensively in order to gain that distance, but thereafter their use would probably be limited.

A delaying action by a corps in successive positions comprises the direction and control by the corps commander of a series of coordinated withdrawals from one main position to another, withdrawals from the main positions being made only upon the orders of the corps commander.

Section 6

BOOK REVIEWS

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Adams, James Truslow.—**America's tragedy**. 1934—415 pages....M 973-C

CONTENTS: Preface; The rope of sand; The chain of iron; The background, 1820-1860; The footsteps of Fate; The house divides; Civilian War, 1861; The war gets under way; 1863; The fall of the Confederacy; The aftermath; Index.

Reviewed by Captain E.L. Sibert, Field Artillery

If a foreigner, who has read little or no United States history, asked me for the title of one brief authoritative book on the causes of our Civil War, I believe I would submit the above title.

The "Tragedy" is of course the war between the states, but as the author more definitely puts it: "the essence of our national tragedy has been that the section of our country in which the humane view and way of life developed first should, largely from the accidental nature of its labor economy, have been forced for two or three generations to expend its intellectual energies against the trend of the age, to lose its wealth, and to be left in ruin and without its proper and essential influence on the rest of the nation, which sorely needed, as it needs to-day, what the South had to give. . . . Speaking broadly of sections and not of individuals, it appears that only in the South was it generally accepted that life did not consist only . . . of achieving 'success' but, it was something good in and for itself."

The book traces the course of slavery from John Rolfe's 1619 diary entry: "Came in a Dutch man of warre that sold us twenty Negars," down through the Emancipation Proclamation. The author also discusses to some length the formulation of the Constitution, its adoption and early interpretation, the effect of Marshall, Jefferson, and Hamilton and later of Calhoun and Webster. States rights, property rights, and secession rights are all covered most fair mindedly, I believe. In fact, I have never seen a clearer, more judicial exposition of the issues over which the war was fought.

The war itself is traced through to the end with emphasis on the feelings which aroused both North and South. The campaigns are treated in bare outline and without maps, but the conclusions are so sound in

this part of the book that the military student is forced to give credence to the rest of the work.

Recommended only to those genuinely interested in Americana, as it is an entirely serious but highly valuable document.

One suspects throughout that James Truslow Adams is of the Virginia Adams' and not of the Boston Adams Family, of whom he has written before. None the less, the average fairly neutral reader must admit the reasonableness of the conclusions drawn.

Close, Upton (Josef Washington Hall).—Challenge: Behind the face of Japan. 1934—409 pages. 952

CONTENTS: First Word. Behind the face of Japan: Headliners and understanding. The Background: Japan and England—parallels to the seventeenth century; Japan's unifiers; The hiatus; The genius that disciplined Japan; Japan comes out; Japan and Britain to date. Men and Empire: Japan's face sets; Yellow mettle; Contrasting characters; Patriotic super-gangster; Japan's Lord Nelson; Adventurer and King of Finance; Liberals, saint, scientist; Diplomats and administrators; Gods in politics. Japan Against the World: Modern Samurai; Men, boats and naval ratios; Japan's modern feudal lords; Lesser "Robber Barons"; Spokesmen of expansion; Light from the East. Emotional Faces of Japan: Natural and sentimental Japan; Individualistic and nonconformist Japan; The hysterical face; Humanitarian Japan; The Divine House; Radicalism in Japan; Aesthetic and pleasure-loving Japan; The survival of the fittest. Last Word. Appendix—Japan's competition with the West shown in Figures. Author's summary-index.

Reviewed by Major F. During, Infantry

This book is an able presentation of Japan viewed as a challenge to world domination by the white man and to the economic and social systems of the West. The book unquestionably will prove to be of sustained interest throughout. It abounds in information which reveals in detail the "face" of Japan and which at the same time tends to disclose the ambitions and aspirations behind that face.

Roughly, the volume may be divided into four parts, of which one is a survey of the history of Japan; another contains not a few biographical sketches of Japanese leading men past and present; and still another is a study of the characteristics and psychology of the nation, together with its attitude toward its ruling house and its reaction to radicalism. Finally, we are made acquainted with the remarkable success of Japan in world trade and her "spectacular rate of market invasion" in recent years.

In relating the recorded history of the Nipponese Empire, Mr. Close draws a parallel between it and the history of England, and finds that up to the seventeenth century the two nations developed equally. In Japan at that time began the striking era of seclusion, and not until the end of the nineteenth century, following the restoration of her empire, did Japan enter upon her "most brilliant exhibition of catching up," and in the current decade she even "shows astonishing signs of surpassing England."

Mr. Close is of the opinion that it was during the Restoration period that the three dominant features determining Japan's attitude toward her reigning house and the outside world were definitely set. The first is her concept of the innate divinity of the Emperor, the religiously fanatic worship of whom testifies to a mentality that is not understandable "to any one outside of the Japanese"; the second finds its expression in a superiority complex toward Korea and China. The third is a conviction of the divine mission of the Japanese nation in the world. From the many instances in support of this statement scattered throughout the book, the following may be cited: "Providence calls on Japan to undertake the mission of delivering humanity from the impasse of modern material civilization," said Mr. Matsuoka, of League of Nations fame, who in "anger and challenge" walked out of the hall of the League at the head of the Japanese delegation.

The pen-portrait gallery of the men of Japan who made her history and those who now play a prominent part in that country's life, as well as the bringing out of characteristic traits outlining the psychological

physiognomy of the nation, perhaps constitutes the most interesting and instructive section of Mr. Close's book.

Among the psychological peculiarities of the nation, an exaggerated pride and emotionalism seem to attract particular attention. In the "tremendous waves" of emotion, as well as in the Japanese ability to bide their time while cautiously and steadily scheming and preparing a surprise blow, "lies our danger from Japan."

Mr. Close points out that the Japan of today, having lately increased the size of her empire threefold, occupies an exclusively advantageous position for the building up of a modern industrial power. Industrialized Japan, the author states, now "outproduces, outsells and outsails" Western countries, which can not compete with their "too apt pupil" at their own game. Because of economic necessities and political logic, he holds that the "rest of Pacific Asia, particularly the Philippines," is tending to come under Japan's "spreading wings," not to speak of Russia, which "sooner or later" will be faced with the establishment of Japan's boundary along Lake Baikal. Under these conditions, "if the United States wishes to avoid the final showdown it must either take second place on the Pacific . . . [or] shut itself off. The United States may do this, getting off the seas and out of world politics and competitive international trade." [New York Times Book Review, 16 December, 1934]

Cruttwell, C.R.M.F.—*A history of the Great War, 1914-1918.*

London, 1934—649 pages. M 9403-E4-D-42-A

CONTENTS: Preface; Armies and plans; Defeat and victory in the west; Tannenberg and Lemberg; The naval situation at the beginning of war; The campaign in Poland, 1914; The first battle of Ypres; The fortunes of Admiral von Spee; The first effects of the war on belligerents and neutrals; The strategical preparations for 1915; The campaign in France and Flanders, 1915; The retreat of Russia, 1915; The British blockade and the first German submarine campaign; The Dardanelles; The collapse of the Entente plans in the Balkans in 1915; Verdun; The Somme; Events in the east in 1916; The war in the North Sea until Jutland; Jutland; Mesopotamia, Egypt and Palestine, 1914-1917; Attempts to negotiate peace 1916-1917; The great submarine campaign and the entry of America into the War; Changes in the political and military direction of the Entente; The Russian revolution; The campaign in Flanders, 1917—Messines and Passchendaele; The Italian campaign to Caporetto; Caporetto and the defence of the Piave; Cambrai; Peace in the east; Preparation and counterpreparation for the great attack in the west; The last German bid for victory; Zeebrugge and Ostend; Foch's counter-stroke and the great reversal of fortune; *Tout le monde à la bataille*; The negotiations; The German revolution and the Armistice; The last year of the Italian War and the end of Austria-Hungary; The overthrow of Turkey—The conquest of Mesopotamia—The final campaign in Palestine. Epilogue; Appendix on casualties; Index.

Reviewed by Major F. During, Infantry

Mr. Cruttwell has written a worthy companion to Liddell Hart's more critical study. In a single volume, the author has given an interesting and, on the whole, clear narrative of the related military, diplomatic, and political circumstances affecting the course of operations in the principal theaters of war and on the sea. The book does not, however, deal with the causes of war, remote or immediate, nor with the so-called settlement which followed. The absence of an account of the campaigns in Africa is noticeable. While these campaigns perhaps have little strategic significance in relation to the war as a whole, they should have, in the reviewer's opinion, at least been mentioned.

The treatment of tactical problems has been omitted, while on the other hand the strategical problems facing the opposing armies at different periods of the war have been treated in a clear manner. There are two misconceptions with regard to the German plan of 1914. One is the date when a decision was expected by Moltke (three weeks—according to the German time table the right wing was expected to be at Ghent on the twenty-second day of mobilization). The other is, that an offensive on both flanks, leading to a double envelopment of the French center, was Moltke's original intention. Moltke actually formed an inaccurate picture of the situation and yielded to Rupprecht to follow up the retreating French, which of course committed him to the double offensive.

It is somewhat surprising to find on page 142, and again in the Epilogue, a bitter condemnation of the soldiers and an implied approval of statesmen in their conduct of the war. "Modern war is too serious a business to be entrusted to soldiers." One of the big lessons of the war was the need for the whole-hearted cooperation between soldiers and statesmen that can only be accomplished by a clear understanding of each other's difficulties.

Freeman, Douglas Southall.—**R. E. Lee. A biography.** Volumes III and IV. 1935—559 and 594 pages....M 9737-E4-C.75-B92 (LE)

Reviewed by Colonel Troup Miller, Cavalry

Volumes I and II of this monumental biography covering the career of this great Southern soldier from his early ancestry to the "high noon of the Confederacy" at Chancellorsville were reviewed by me in the *Review of Military Literature*, March, 1935, No. 56 (see page 158).

The first two volumes cover fifty-six years of Lee's life; the last two cover seven years. The emphasis of the first two volumes is on Lee in victory, while the emphasis of the second two volumes is on Lee in defeat and after defeat. It is hard to choose which is the more compelling as a narrative.

The first two volumes impress the reader with the certainty that never was every detail of Lee's life and character so portrayed. The finished work confirms and fortifies that certainty. One now contemplates the grand total, the sum of all of the items, Lee complete for all time. Here the man himself stands in your presence. What was not fully apparent as one read the first volumes is overpoweringly present now. The man himself emerges from these volumes as no one has ever been able to present him before.

Dr. Freeman proceeds in his invariable style; that is by sifting, selecting, rejecting, and analyzing, and by his method he makes his subject, which has seemed in the past too much like a still-life picture, breathe, talk, and walk as he has never been pictured before.

Furthermore, he possesses to a marked degree the faculty of making visible a whole scene, battle, military or political situation by the use of a short, compact phrase. He expresses in a few words what others have taken pages to describe. For instance, he tells us of the downfall of the Confederacy in seven words—"the slow partition of the seceded states," and he presents the hopelessness of Lee's task after Gettysburg in two words—"bewildering odds."

It is refreshing, too, to find a biography where the hero's failings and failures are recognized when setting forth his qualities and achievements.

After all, it is the study of Lee's military campaigns which gives this book its high importance, for indeed it is a great military biography. Particularly valuable, too, will be found Lee's relations with the Confederate government, and his conception of the duties of the soldier and the statesman.

The third volume opens with a discussion of the results of the battle of Chancellorsville. The author in considering the use of the cavalry in that battle draws a pretty contrast between what Lee knew and could do at Chancellorsville, when Stuart was present, as compared with his groping through Pennsylvania two months later when Stuart was absent. He likewise points out that Hooker was handicapped in that battle by his lack of cavalry and doubts very seriously if Jackson's flank movement on 2 May would have been a success if an adequate force of cavalry had covered the Federal right.

The author censures Lee for not recalling Longstreet from Southern Virginia in time for the two divisions with him to participate in the battle of Chancellorsville and makes some interesting conjectures as to what "might have been" had these additional forces been present. He calls this one of the great mistakes of Lee's military career.

The chapter on the reorganization of the Army of Northern Virginia after the battle of Chancellorsville is very illuminating, and the author attributes many things which happened at Gettysburg to this new organization with its new and inexperienced leaders, its untried distribution of units and with "the inevitable confusion of a staff that had to be enlarged or extemporized to direct troops with which it was unacquainted."

In presenting the introduction to the Gettysburg campaign, Dr. Freeman makes it perfectly clear that, regardless of all other considerations, Lee invaded the North for the express purpose of procuring provisions for his army. At this point of his narrative he introduces a very impressive discussion of the relationship which existed between Lee and Longstreet after Jackson's death and tells us that Longstreet was bitterly opposed to the Northern invasion and finally unwillingly yielded to Lee, insisting that if a campaign was to be undertaken in Pennsylvania it should be conducted as a strategic offensive and a tactical defense. He says that Longstreet's attitude was most officious but that apparently it never occurred to Lee that Longstreet was trying to dictate. He suggests the thought "that it would have been better if Lee had stood Longstreet before him and had bluntly reminded him that he and not the Chief of the First Corps commanded the Army of Northern Virginia." Lee was unaware that there was any menace to the cause in the mind of Longstreet and was to learn later that "tact is sometimes dangerous in dealing with self-assertive subordinates."

We are told repeatedly of Lee's concern for the safety of Richmond and are reminded again that Lee considered the best defense of Richmond to be an aggressive and threatening maneuver towards the enemy or into the hostile territory. An interesting side-light at this juncture is Lee's views on the question of the promotion of the peace movement in the North as expressed in an ingenuous letter to Mr. Davis and in which he displays a remarkable insight into a political question which is of such great concern to his government.

The controversy over Stuart's orders and movements in the Gettysburg campaign is very cleverly handled in an appendix, and the author concludes by saying: "Stuart disregarded his principal mission of moving promptly to the right flank of Ewell (Lee's leading corps) and he was guilty of violation of orders when he encountered material 'hindrance' and did not turn back. Lee hoped that Stuart could attack the Federal wagon trains and disorganize the Federal advance to the Potomac, but he neither anticipated nor authorized any such operation as Stuart conducted."

In the approach to Gettysburg the author pictures vividly Lee's dependence upon his cavalry and how completely in the dark he was without it. He returns repeatedly in his story to Stuart's mission and wonders how it could have been misinterpreted by this intrepid cavalry leader who had been so valuable to Lee in past campaigns and whose information of the enemy had always proved so accurate.

Lee's biographer tells us that as he reviewed his forces before starting on the Gettysburg campaign "his confidence in them was greater than ever," and quotes a divisional commander, General Heth, as saying: "The fact is, General Lee believed that the Army of Northern Virginia, as it then existed, could accomplish anything." It seems clear that Lee was, for the moment, exalted by this offensive spirit above the plane of realities.

By his thrust into Pennsylvania past the flank of the Army of the Potomac, Lee counted on drawing the Federal Army after him in a hurried attempt to interpose itself between him and the attractive objectives offered by Baltimore and Philadelphia. General Trimble later quoted him as saying: "They will come up probably through Frederick, strung out on a long line and much demoralized when they come into Pennsylvania. I shall throw an overwhelming force on their advance, crush it, follow up the success, drive one corps back on another, and by successive repulses and surprises, before they can concentrate, create a panic and virtually destroy the army."

Then, pointing on the map to Gettysburg, he said: "Hereabouts, we shall probably meet the enemy and fight a great battle, and if God gives us the victory, the war will be over and we shall achieve the recognition of our independence." These words certainly seem to ring true of Lee's purpose and mood.

It is interesting to note Lee's comment when he heard of the change of commanders in the Union Army and in view of this remark one wonders that he did not proceed more cautiously in the absence of the mass of his cavalry. He said: "General Meade will commit no blunder in my front, and if I make one he will make haste to take advantage of it."

At first, it is true, he suppressed his desire to fight, discouraging a subordinate's eagerness with the remark, "No, I am not prepared to bring on a general engagement today, Longstreet is not up." But we are told that he suddenly reversed his attitude when the arrival of further divisions of Ewell's and Hill's corps on either flank of the enemy's advanced force led him to seize the local opportunity. The enveloping line swept forward and the Northerners were hurled back through Gettysburg to the ridge behind, leaving "nearly 5,000 bewildered prisoners" in the assailants' bag.

The biographer handles the battle of Gettysburg with rare skill, painting a vivid picture of what occurred on that memorable battlefield. He makes it plain that Longstreet was violently opposed to the attack but was in favor of turning the enemy's left suggesting to Lee that we "throw our army round by their left, and we shall interpose between the Federal Army and Washington. We can get a strong position and wait, and . . . the Federals will be sure to attack us." In view of the great lessons in history which are still being taught in the modern schools of military art, there appears to have been much sound logic in Longstreet's recommendation. To those who have in the past doubted Longstreet's loyalty to Lee at Gettysburg, much new material is presented which may serve to prove that the responsibility for the disaster there did not rest altogether on Longstreet's shoulders.

In condemning Longstreet's suggestion, Dr. Freeman quotes General Maurice's recent opinion that such a move "would have been wildly rash" but this view as quoted by the author should not be accepted without considering General Meade's belief, at the time, that Longstreet's proposal was not only "sound military sense" but the step he feared Lee would take. The absence of the larger part of Lee's cavalry certainly handicapped such a move, but Stuart was hourly expected and did in fact arrive the next day.

Lee, however, replied to Longstreet: "If the enemy is there, we must attack him." Longstreet countered—"If he is there, it will be because he is anxious that we should attack him—a good reason, in my judgment, for not doing so."

Lee, however, "displayed not the slightest intention of changing his plan" in spite of the reports which were continually reaching him of the increasing enemy strength in his front. During the discussion with Longstreet, Colonel Long of Lee's own staff returned from reconnoitering the front of Cemetery Hill and reported that it was occupied in considerable force by a well-posted foe. "An attack," he said, "would be hazardous and doubtful of success." Lee then rode over to see Ewell, and asked if he could renew his attack the next day; but even General Early, who had lived up to his name while the opportunity remained, now declared that by the morrow an attack on the heights would be most costly and dubious.

The main attack, on the right, was to be made by Longstreet. Lee was anxious to launch it as early as possible, but seems to have refrained, according to his habit, from giving explicit orders.

Early next morning, 2 July, fresh enemy reinforcements were seen moving into position on Cemetery Ridge and when Longstreet saw this he again urged Lee to consider a turning movement in preference to an almost

direct attack. But Lee apparently was not to be dissuaded, although he decided to shift his line of advance further to the right.

Again at daybreak on 3 July, after the delayed and partial success of the preceding day, Longstreet greeted General Lee with the same suggestion he had offered before: "General, I have had my scouts out all night, and I find that you still have an excellent opportunity to move around to the right of Meade's army and maneuver him into attacking us." When he found Lee unshakable he protested strongly that he did not believe men could be found who would be capable of storming the ridge. But as before his warning had no effect on Lee.

With reference to the controversy concerning Lee's orders to Longstreet for operations on 2 July and Longstreet's movements on that day, Dr. Freeman states that Lee "simply followed his established practice when he refrained on the night of 1 July from giving Longstreet direct orders to have his men at the front by a given hour," and that "there is no supporting evidence that Lee directly gave the order to Longstreet" to attack at sunrise. He says that while Lee gave Longstreet no positive order to attack at any particular point the next morning, yet Longstreet must have known that Lee wished the First Corps brought up as rapidly as possible and that he must have understood from the conversation they had during the evening of 1 July that Lee intended to attack as soon as it arrived in the hope of driving the Federals from their position before the whole of the Army of the Potomac was concentrated in his front. The whole question seems to have been summed up when the writer made this statement: "In dealing with Longstreet—as with Jackson until his death—it was not Lee's custom to give explicit orders on the field of battle. He had been content to outline his plan and to express his wishes in the belief that his corps commanders would arrange the details more accurately than he would be able to do." It was his habit to leave much discretion to his corps commanders.

But the author does not excuse Longstreet. He charges that Longstreet was antagonistic to Lee's plan throughout, that he was very deliberate in his movements throughout 2 July, that he sulked continually, and when he did finally put his troops in action late in the afternoon he did it half-heartedly and with the attitude of throwing all responsibility for failure, if it came, upon Lee.

After the battle was over we are told that Lee stopped at Longstreet's bivouac on the roadside and made the same remark to him he had made to Pickett on the field after the fatal charge: "It's all my fault, I thought my men were invincible."

The author's discussion as to why Gettysburg was lost by the Army of Northern Virginia is one of the most noteworthy chapters in the entire four volumes. In the first place he tells us that Lee attacked because he did not believe that Meade had been able to concentrate his whole army and that the success of the first day and the belief that Meade had only a part of his army on the field and the enthusiasm of his own troops had led him to conclude that the possible results of a victory justified the risks. And he adds that Meade's chief reason for remaining at Gettysburg and receiving Lee's final assault there was the assurance he had received from a captured letter from President Davis to Lee which informed the latter that there would be no Confederate demonstration on Washington.

Dr. Freeman states that the invasion of Pennsylvania, though a daring move, was probably justified under the circumstances faced by Lee, politically and in a military sense. He gives five main reasons for Lee's failure: first, the absence of his cavalry when he needed it most. In Stuart's absence he had no satisfactory form of military intelligence and did not know the strength or disposition of Meade's force; second, the failure of Ewell to take Cemetery Hill after the Federal defeat on the afternoon of 1 July. Lee is criticized for the form of the order which he gave Ewell "to capture Cemetery Hill, 'if practicable';" third, the overex-

tension of the Confederate line. Lee's front on the second day was slightly more than five miles in length with poor communications between the flanks. Coordination of attack was almost impossible with a limited staff. He thinks that Lee should have shortened his line and concentrated his attack; fourth, the state of mind of the responsible Confederate commanders. Longstreet was disgruntled because Lee refused to take his advice for a tactical defensive and deliberately delayed carrying out his orders. His actions are pictured as nothing less than gross insubordination, but this indictment of Longstreet does not relieve Lee of all blame. "His greatest weakness as a soldier was displayed along with Longstreet's, for when Longstreet sulked, Lee's temperament was such that he could not bring himself either to shake Longstreet out of his bad humor by a sharp order, or to take direction of the field when Longstreet delayed." Dr. Freeman would have us believe that Lee virtually surrendered to Longstreet on 2 July and says: "It is scarcely too much to say that on 2 July the Army of Northern Virginia was without a commander." He tells us that Longstreet was insubordinate and Lee was overconfident, which psychological factor in itself is almost of sufficient importance to be regarded as a separate reason for the Confederate defeat; fifth, and most fundamental among the reasons for Lee's failure, was the general lack by the reorganized army of coordination in attack. The reorganized army did not fight as a single machine. There was no coordinated action of supporting troops and reserves. There was no unity of action at any time between the different corps. Lack of coordination was displayed in the artillery as well. The whole value of converging fire was neglected. A large number of field pieces were not employed at all on 3 July.

Lee is criticized too for hurling all his troops against Cemetery Ridge and holding none in reserve, but he had done the same thing at Gaines Mill and Second Manassas and in both instances had driven the enemy from the field. It was his custom to hurl forward in his assaults every man he could muster, on the principle that if enough weight was thrown against the enemy there would be no need of reserves.

Dr. Freeman does not blame one man for the loss of this battle—he is both too sound and too wise for that—but he establishes a long chain of circumstances which unquestionably contributed to Lee's defeat in Pennsylvania.

The author believes that few of the above mistakes would have occurred if Jackson had not died and a reorganization of the army had not thereby been made necessary. Two-thirds of the troops were under corps commanders who had never directed that many men in battle. Furthermore, Ewell, a new corps commander, was not familiar with Lee's discretionary methods, and Longstreet was determined to do anything except attack.

In discussing the battle at a later date with the Governor of Maryland, he is quoted as saying that the battle would have been gained if General Longstreet had obeyed the orders given him and had made the attack early instead of late. Lee was also credited with saying in the same conversation, "General Longstreet, when once in a fight, was a most brilliant soldier; but he was the hardest man to move I had in my army."

In referring to the battle of Gettysburg in one of his few letters after the war about his campaigns, Lee wrote: "Its loss was occasioned by a combination of circumstances. It was commenced in the absence of correct intelligence. It was continued in the effort to overcome the difficulties by which we were surrounded, and it would have been gained could one determined and united blow have been delivered by our whole line. As it was, victory trembled in the balance for three days, and the battle resulted in the infliction of as great an amount of injury as was received, and in frustrating Federal plans for the season."

As one studies this great campaign in the light of the information and material made available by Dr. Freeman, it becomes all the more difficult to attach to any one commander the blame for Lee's failure at Gettysburg. Dr. Freeman, in defending Lee, says: "For the supreme effort of all his

warring, Lee had to act through a sullen, despairing lieutenant," but this reviewer has gained the impression after reading these pages that, while Longstreet disagreed with him and was apparently displeased over the prospects of a frontal assault against such a formidable position, and while he was undoubtedly guilty of inactivity during the battle, it hardly seems fair to interpret his attitude as one of disloyalty and insubordination. Lee had often asked him for his recommendations, and he gave them freely on this occasion.

As we read further in this engrossing book we can find nothing to indicate that Lee's admiration for Longstreet was lessened by the latter's conduct in this battle which meant so much to the Confederacy. Lee apparently bore him no animosity as was attested later by so many generous expressions of friendship for him. "My interest and affection for you will never cease," he wrote Longstreet soon after the war, "and my prayers are always offered for your prosperity." Lee never cherished resentments. Nor does it appear that Longstreet thought any the less of Lee as a result of their disagreement at Gettysburg as is evidenced by the remark of Colonel Freemantle, the British military observer, on the eve of the battle, who said: "It is impossible to please Longstreet more than by praising Lee."

The only real adverse criticism which can be made on this whole work is a certain disproportion in the author's treatment of Longstreet. Dr. Freeman reiterates and dwells on Longstreet's defects but says virtually nothing about his military virtues, leading the uninformed reader to suppose that he possessed none, which it is certain was far from what the author intended.

After Gettysburg Lee still held that the offensive-defensive was the true strategic policy of the South, even if prolonged invasion of the North was impossible. The big problem which faced him now was the vital question of reorganization and shoes and provisions for his army.

We are told that the final operations of 1863 marked two new stages in the methods of war employed by the Army of Northern Virginia—faith of the troops in the great utility of field fortification and the use of dismounted cavalrymen to support the thinning line of the infantry. "Lee's digging of trenches in the open field, while actively maneuvering, began with the first stage of the Chancellorsville campaign and was expanded at Mine Run."

At this point in the story of the war the writer introduces a chapter on "Lee as a Diplomatist" in which he shows the methods employed by Lee in dealing with his officers and relates many interesting examples of his tactful consideration of them as well as the disciplinary measures he employed in handling them. Likewise the treatment and care of his men is pictured in a very striking manner and the measures he adopted to maintain the army's morale, supply it with provisions, and hold it together for the new campaigns are vividly portrayed.

Referring to Lee's powers of maintaining the morale of his army, the author says: "There is, perhaps, no more impressive example in modern war of the power of personality in creating morale. Morale behind the line, not less than on the front of action, was sustained by Lee."

Many tales have been told of Lee's encounters with his soldiers who asked him for a quid of tobacco or damned him as an ordinary Virginia cavalryman, but not until now has enough been told of his understanding that the clothes, the shoes, the food of the private soldier are all important in creating high morale.

There is no more pathetic chapter in all four volumes of this great biography than this account of Lee's efforts to procure food, forage, and clothing for his army, to say nothing of recruits, during the cruel winter of 1863-64. "Every resource of mind, all his physical energy, and all the character he had built up through his years of self-control he threw into the struggle to keep his army in condition to fight." His qualities of leadership were put to the supreme test.

The student of military history will find much to interest him in the author's account of the battle of the Wilderness on 6-7 May, 1864. Grant had taken command of the Federal forces, and the offensive spirit appeared to have been instilled in them. Dr. Freeman says: "The whole demeanor of the Unionists was far different from what it had ever been in Virginia during any previous campaign."

Lee's personal actions during this battle are described in detail, and one can almost see him as he follows the course of events from one flank of his army to the other. He seemed more explicit in giving his orders after his experience at Gettysburg and exercised more control over the battle than he had in that disastrous engagement.

There is an especially interesting discussion of Lee's prediction after this battle of Grant's move on Spotsylvania Courthouse and the action he took to meet this move. Lee's selection of his defensive position there comes in for consideration, and the author reports Henderson as saying: "It was not only the intrenchments but the natural features of the ground also on which Lee relied in his defensive tactics. His eye for ground must have been extraordinary."

Then follows the most vivid description of the battle of Spotsylvania, and again we see the Confederate leader with the battle-blood surging in his veins attempting to lead personally a counterattack against the enemy who has succeeded in breaking through his lines in the Bloody Angle. The writer reports Fitz Lee as saying: "He was very sensitive about his lines being broken. It made him more than ever personally pugnacious."

Lee seemed to be everywhere in this battle, and as one accompanies him through the thrilling pages of this book and realizes the great danger to which he constantly exposed himself, one cannot help but feel that a Greater Commander to whom he had consecrated his life was guiding his destiny. Lee exposed himself so often during the course of the campaign that he drew many protests from the general officers as well as from the men in the ranks. "I wish," he said, in answer to one such protest, "I knew where my place is on the battlefield; wherever I go someone tells me it is not the place for me."

There was no more desperate fighting in the whole war than at Spotsylvania, and no battle required more personal direction by the Confederate commander than this frightful struggle. Dr Freeman tells us that at its darkest moment Lee received word of the mortal wounding of Stuart at Yellow Tavern and that it was the worst calamity that had befallen the South since that May day, just a year previously when "Stonewall" had breathed his last. The eyes of the army had gone out. He gives us a sad picture of Lee's grief over the loss of his great lieutenant and quotes him as saying: "General Stuart has been mortally wounded; a most valuable and able officer. He never brought me a piece of false information. A more zealous, ardent, brave and devoted soldier than Stuart the Confederacy cannot have."

The author closes the terrible story of Spotsylvania thus: "Jackson dead, Stuart dead, Longstreet wounded, Hill sick, Ewell almost incapacitated—the men on whom Lee had most relied were going fast! He had to walk alone." And to add to Lee's anxieties Sheridan was conducting a series of disastrous raids on his lines of communication.

We are told that Lee's great concern after Spotsylvania was to replace the severe losses he had sustained in that battle, and we gain an insight into his thoughts by reading how he implored Mr. Davis for reinforcements which were becoming more and more difficult for the South to provide.

Lee's strategic policy now was not to attack Grant while he was entrenched but to resume the offensive only if he could catch the enemy in motion. Spotsylvania had shown him the value of field fortifications more than ever, and we are led to wonder why, with his weakening forces, he did not sooner adopt a more defensive attitude.

And again we find that the chief object of his solicitude is Richmond between which point and Grant's army he must keep the Army of Northern

Virginia in addition to keeping open the railroads on which he was dependent for supplies.

It is interesting to observe, especially in the light of modern teaching, how constantly Lee sought after his experience at Gettysburg an opportunity to envelop the enemy's flank and how carefully he guarded his own flanks from enemy maneuver. He had been successful in turning the enemy's left in the battle of the Wilderness, and the race to Spotsylvania and later to the North Anna was nothing more than a maneuver to prevent Grant from turning his flank. The author says: "Perhaps he recalled, as he planned, Napoleon's memorable analysis of just such a problem as confronted him then. 'Maneuver incessantly.' Napoleon had said, 'without submitting to be driven back on the capital which it is meant to defend or shut up in an entrenched camp in the rear'."

Again at Old Cold Harbor we see Lee searching for an opportunity "to roll up the Army of the Potomac from his right" but his attempt this time was without success, being repaid later, however, by letting Grant do the attacking.

The student of military history will find the chapter on the "Rapidan to Petersburg in Review" one of the most fascinating and absorbing chapters in the whole series. In this chapter the author compares the generalship of Lee and Grant, points out the mistakes and accomplishments of each, weighs the losses suffered on each side, and finally concludes, after a careful presentation of all the facts, that the balance of achievement is one overwhelmingly to Lee's credit.

The author's description of Grant's constant hammering at the Army of Northern Virginia from the Wilderness to Second Cold Harbor and of Lee's clever maneuvering to ward off his blows is most striking and leaves one with the feeling that one has witnessed a mighty struggle between two great masters of the art of war with skill matched against skill. Never before had the Army of Northern Virginia been so long engaged with the enemy and never before had the Army of the Potomac been so animated with the spirit of the offensive.

The fourth volume opens with a clear statement of Grant's strategy for reducing the Confederacy, and one marvels that with the illimitable resources at his command he was not able sooner to cause the surrender of the Confederate forces.

The operations around Richmond and Petersburg are given in detail, and figures are produced to show the long thinning line of the Confederacy. The plight of Lee's army at this point in the story makes a sad picture indeed—no reinforcements, inadequate equipment, no provisions with a threat of starvation and with an aggressive enemy gradually closing in around him and seriously threatening that line of communications which he has guarded so zealously during the entire war. Attrition and exhaustion are becoming more serious but still we are told that Lee entertained the hope that he might yet join forces with Johnston and succeed in destroying Grant's army—a truly remarkable example of undaunted courage struggling against tremendous odds.

One can not help but admire the tenacity with which Lee nurtured the old spirit of the offensive which had crowned with victory so many of his earlier campaigns though it must be apparent to all readers that his growing weakness should have compelled him to stand on the defensive. Even when laid up in bed on the North Anna, his "insistent cry from his tent" was: "We must strike them a blow." Clinging to his dream of the offensive he talked repeatedly of a blow that should "crush" Grant's army and "was more than ever determined, if he found an opening, to take the offensive in what he told Anderson was 'the grand object, the destruction of the enemy'."

The final withdrawal from the defensive lines of Richmond and Petersburg is graphically related as Grant draws his cordon around the Confederate right. Dr. Freeman then tells us the stirring story of Lee's frantic efforts to supply his army and of the hopeless situation which confronted

him during these critical days in April, 1865. He finally brings us to the surrender of the heroic army in gray at Appomattox and furnishes us with copies of all the correspondence between Lee and Grant leading up to that momentous event. The moving story of the surrender at Appomattox Dr. Freeman tells most fully and incomparably well and leaves one with a feeling of intense relief that the unequal struggle has at last been brought to an end.

One is particularly impressed with the scene where he describes the final meeting of the two principal actors in the great drama which is drawing to a close. Grant's courteous treatment of Lee and the generous consideration which he showed him on this memorable occasion is related more completely than it has ever been told before, and the author adds a sympathetic touch and just enough pathos to his description of this final assembly of the leading characters in his story to bring the great play to a fitting conclusion. The description of this historic meeting is given in such convincing detail that one positively lives and breathes the very atmosphere of the McLean house while the surrender was taking place. Lee must have been impressed with Grant's thoughtfulness on this occasion and the careful treatment accorded him, for he in turn appears to have observed meticulously all the military courtesies demanded on such an occasion and is reported to have said some time later: "General Grant has acted with magnanimity."

The two crowning chapters of the four great volumes are found in the fourth volume; one, "The Sword of Robert E. Lee," deals chiefly with his military career, while the other, "The Pattern of a Life," covers his personal character. If Dr. Freeman had written nothing else but these great chapters they would still leave us greatly in his debt.

Under the caption "The Sword of Robert E. Lee" the author very skilfully sums up the virtues and shortcomings of the great leader of the Confederacy and points out very forcefully the qualities of generalship which were the foundation of his strategy. This chapter is a complete recapitulation of Lee's military career and is in itself a review of all the important features of his military character. It sets forth in detail the reasons for Lee's success as a soldier.

Dr. Freeman tells us that the following five qualities gave eminence to his strategy—"his interpretation of military intelligence, his wise devotion to the offensive, his careful choice of position, the exactness of his logistics, and his well-considered daring." To these qualities the author adds four other qualities of generalship which he says fall midway between strategy and tactics and which no student of war can disdain—"the first was his sharpened sense of the power of resistance and of attack of a given body of men; the second was his ability to effect adequate concentration at the point of attack, even when his force was inferior; the third was his careful choice of commanders and of troops for specific duties; the fourth was his employment of field fortification."

In considering Lee's qualities of generalship, Dr. Freeman makes an interesting comment upon one of them when he says: "As far as the records show, he never read Bourcet, but no soldier more fully exemplified what that master taught of the importance of position," and in referring to his audacity he says: "Necessity, not choice, explains this quality," and "his cause being desperate, desperate risks were his only chance." In summing up his strategy he tells us: "Lee's career does not prove that a soldier must be a great military engineer to be a great strategist, but it does demonstrate that if a strategist is an engineer as well he is doubly advantaged."

The author closes this remarkable chapter by stating that "the foundation stone of his military career was intellect of a very high order, with a developed aptitude for war. On that foundation his strategy was built in comprehensive courses. Visualizing a military problem with clarity, he studied every report that would aid in its solution. If it were possible he put his solution in terms of the offensive. With care he would select

his position; with skill he would reconnoiter it; with precision of logistics he would bring his troops to it, and with daring he would engage them."

Under the other chapter, "The Pattern of a Life," the author sums up the personal characteristics of our Southern hero and pictures his character in all of its beautiful colors. This chapter alone is the culmination of the many glowing tributes to his memory which recur throughout these pages, and if one were called upon to select the most impressive chapter of the whole work it would be difficult to overlook the title of this chapter.

Dr. Freeman reminds us that "Robert Lee was one of the small company of great men in whom there is no inconsistency to be explained, no enigma to be solved. What he seemed, he was—a wholly human gentleman, the essential elements of whose positive character were two and only two, simplicity and spirituality."

He reviews again Lee's ancestry and points out very convincingly the traits of character which he inherited from each of his forebears. He shows us that the stamp of real character must have been upon him from childhood, and that the final character of the man developed rapidly and definitely in the days of his boyhood and young manhood.

The author cuts out for us in detail the pattern of Lee's daily life and adds: "There is every reason to believe it was the mirror of his own soul. . . . His language, his acts, and his personal life were simple for the unescapable reason that he was a simple gentleman. Simple and spiritual—the two qualities which constitute the man cannot be separated. The strongest religious impulse in his life was that given him by his mother."

Lee's simple Christian faith is discussed more beautifully in this brief chapter than in all the books this reviewer has read of the life of this great man.

If one is to understand correctly Lee's sense of duty and responsibility and his actions under the various conditions which confronted him throughout his life, this remarkable chapter should be carefully studied.

The story after Appomattox is of less interest to the military student, but the biographer does not lower the high standard he has set for himself and continues his narrative in the same thorough, painstaking, and detailed manner which he had displayed throughout the period of the military campaigns.

Here we see Lee bidding farewell to the Army which loved him and had served him so faithfully, and we are struck with the deep concern which he felt for their future and for the fate of his native state of Virginia.

Then we are told of his careful deliberations over the President's proclamation and of his final decision to submit his application for a pardon and to take the oath of allegiance to the United States. This was followed by his decision "to go to work," and we witness his acceptance of the Presidency of Washington College and accompany him as he rides to Lexington on his faithful war horse, Traveller.

Outstanding among the matters which claimed his attention after the close of the war were the constant requests made upon him by his former officers and soldiers for advice as to what they should do, and the reply which he made uniformly to all of them was characteristic of the man to whom they still looked for guidance. He urged them to go home, take whatever work they could find, and to accept the conditions necessary for their participation in the government. Above all, he cautioned them to exercise patience and to refrain from any act which might tend to arouse any further bitterness between the conquered and the victors. His life after Appomattox was an example to the thousands who had followed him. Always in word and act he spoke against useless bitterness. He preached that every energy should be thrown into rebuilding the South as a part of the Union.

His next great concern was for the youth of the South and his responsibility for them. His service at Washington College during the last five years of his life is given in all of its familiar details, and we are finally brought to the last touching scene in the career of the peerless Southern

leader where those who surround his bed, on which in his last delirium he is reliving the days of the war, hear him say, "Strike the tent," and see him go to join Jackson in that army of immortal souls.

As we sum up this great masterpiece of biographies let us try to tell you briefly what others think of Dr. Freeman's work on Lee: Charles Willis Thompson in the *New York Times* says: "Here is Lee's monument. Granite, bronze or marble cannot so vividly present either the man or the soldier to the mind's eye. . . . Lee is complete for all time. . . . The man himself emerges from these volumes as no one has ever been able to present him before."

The *New York Sun* comments: "Not only incomparably superior to any preceding biography of Lee but it is one of the very best of all biographies of military men; a magnificent and true narrative."

Liddell Hart in the *Saturday Review of Literature* has this to say: "As a work of military history I have no hesitation in ranking it almost in a class by itself."

Hirschel Brickell in the *New York Post* tells us: "Inevitably destined to live as both a final portrait of a great man and as a magnificent history of one phase of the War between the States."

Josephus Daniels in the *Raleigh News and Observer* describes Dr. Freeman's great work as follows: "As authoritative as it is full and satisfying to those who had long wished a comprehensive, just and fair appreciation of the great leader of the South . . . A truly great work."

Elbridge Colby in the *Military Engineer* sums up this great biography in these words: "To military men, skill is not measured by eventual success or failure; it is measured by the results accomplished with the means at hand. For examples of such skill in action, soldiers forever will revert to the scrutiny of the campaigns of Robert E. Lee. They will deplore that 'unfailing consideration for the feelings of others' which permitted Loring in West Virginia to vitiate a fine plan and Longstreet at Gettysburg to weaken a vigorous thrust. They will pay no attention to the 'dignity of his fine person' or to 'his gracious considerate manners.' They will cut through 'the glorious memory of the South' to understand and appreciate in him an imperishable model of military skill."

Grasset, Colonel A.—**La bataille des deux Morins.** Franchet d'Espérey a la Marne 6-9 septembre 1914. [The battle of the two Morins. Franchet d'Espérey at the Marne, 6-9 September, 1914.] Paris, 1934—293 pages. M 9403-J.44:4N5M

CONTENTS: Introduction; Le général Franchet d'Espérey prend le commandement de la 5^e armée; Face à l'ennemi (4-5 septembre); En avant (6 septembre); L'ennemi se dérobe (7 septembre); La gauche de la II^e armée allemande est bousculée (8 septembre); L'élargissement de la brèche (9 septembre); La défaite allemande (9 septembre).

[Introduction; General Franchet d'Espérey taken command of the Fifth Army; Facing the enemy (4-5 September); Forward (6 September); The enemy escapes (7 September); The left of the II German Corps is pushed back in disorder (8 September); Enlarging the breach (9 September); The German defeat (9 September).]

Reviewed by Major S.J. Heidner, Infantry

This book tells the story of the French Fifth Army, under General Franchet d'Espérey, at the First Battle of the Marne. It derives its title from the two tributaries of the Marne, the *Grand Morin* and the *Petit Morin*, over which the Fifth Army fought in this battle.

Colonel Grasset gives as the reason for his adding another volume to the already long list of works dealing with the First Battle of the Marne, his belief that the part played by the French Fifth Army in that battle is generally misunderstood. He states that many writers, especially British, have blamed the Fifth Army of having failed to grasp the opportunity of decisively defeating either von Kluck's or von Bülow's army, between 6 and 9 September, by pushing rapidly forward into the breach of some 25 miles which had developed between those two armies, and then acting against the flank and rear of one of them. He believes that a simple recital

of the events of the battle will show that the Fifth Army did all that it could do, considering its condition and the difficulty of carrying out its triple mission of assisting Foch's hard-pressed army on its right, maintaining a close liaison with the slowly moving British army on its left, and of pushing forward with its center. He believes further that the action of the French Fifth Army was the decisive factor which brought about the general retreat of the German armies.

The first chapter of the book begins with a vivid description of the retreating French armies on 2 September. A typical paragraph reads: "Horses were dying by hundreds along the roads. The men marched as if hallucinated from fatigue. Everything indicated that in certain units they had reached the limit of exhaustion, and, it must be admitted, that in these units dissolution was feared." The chapter continues with a narrative of the events relating to the replacement of Lanrezac by Franchet d'Espérey as commander of the Fifth Army. These events are strikingly portrayed. For instance, when d'Espérey comes to the Fifth Army headquarters late in the evening of 3 September to take command, we have the following scene: "General Lanrezac had just turned over to him (d'Espérey) a folder of secret instructions when the telephone rang. The chief of staff answered the telephone and seemed ill at ease. He was saying: 'No, General. Yes, General. But General, perhaps a further effort will be possible . . .' Franchet d'Espérey snapped: 'What's that?' 'It's the XVIII Corps, General, which is very tired. General Mas Latrie does not think that he can carry out the orders given him for tomorrow in their entirety.' 'Give me the telephone. This is General d'Espérey. I am taking command of the army. This is not a time for discussions. Your corps must march; march or die!' And he hung up the telephone without any further explanations."

The next five chapters give a detailed day-by-day account of the operations of the Fifth Army from 4 to 9 September, inclusive. They are particularly well written, and might well serve as a model for writers of military history. The style is colorful, but the author never forgets that he is writing a technical military history. One can easily follow the evolutions of the entire army at any stage of the battle. The author criticizes the British for not having kept their agreement with General d'Espérey regarding their line of departure for the commencement of the general counter-offensive. But he criticizes his own countrymen even more severely where he thinks they have failed. Of General Conneau's cavalry corps he says: "Such was the employment of the cavalry corps on the 9th. That large unit could have inflicted serious injury to the enemy, perhaps kept him from reforming on the Aisne, if, inspired by the great traditions of that arm, it had acted with boldness and vigor either against the rear of von Kluck's or of von Bülow's army. But it did nothing." General d'Espérey is highly praised for his courage, energy, and ability in leading the Fifth Army.

The last chapter is devoted to the German retreat. Here the author's zeal carries him too far in establishing a case against the Germans, for he first proves that the advance of the German First and Second Armies had brought them into so critical a situation that they had to retire to save themselves from destruction, and then he shows that the German higher commanders lost their nerve and erroneously ordered the retirement of those armies at a moment when there was still a chance for success. Obviously one of his hypotheses must be wrong.

Colonel Grasset quotes his sources in only a few instances. There is, however, no reason to suspect the historical accuracy of the book, as the author has a reputation as a historian to uphold. *La bataille des deux Morins* should be invaluable to anyone studying the First Battle of the Marne.

Graves, Robert.—*I, Claudius*. From the autobiography of Tiberius
Claudius, born B.C. 10—murdered and deified A.D. 54. 1934—
494 pages..... M 937-B92(CL)

Reviewed by Captain E.L. Sibert, Field Artillery

I, Claudius is an informal history of the Roman Court during the reigns of Augustus, Tiberius, and Caligula. It is most readable, amusing, and informative.

The book has some interesting aspects for the military reader. For instance, we find the methods of Germanicus and Tiberius in dealing with troops, compared and discussed. The handling of rebellious troops by Germanicus is particularly noteworthy and described in detail.

Of tactics and strategy there is very little, but of intrigue and strategem there is considerable.

Claudius' *Handbook of the Balkans* is an excellent example of the value of a complete military geography to a commander in the field.

The book is full of horror, superstition, and perversion. How Rome continued to exist as an empire through the fifty odd years covered by the narrative, is an unfailing source of wonder, probably only explained by the force of superstition, slowness of communications, and the lack of a promise of something better, coupled of course with the tenacious loyalty and discipline of Roman legions and the German Imperial Guards.

Groves, Brigadier-General P.R.C.—**Behind the smoke screen**.
London, 1934—352 pages..... M 003-A

CONTENTS: Preface; Introductory; War and peace—new facts and old illusions; 'No more war?'; Military conservatism and its cost; Corroborative evidence; The military mind and aviation; The genesis of the supreme blunder of 1919; Air power—fallacies and facts; Some more fallacies and facts; Rules of civilized warfare; More fallacies and facts; Still more fallacies and facts; 'The Supreme Blunder' 1919-1921; 'J'Accuse'; Imperial air defence; The prerequisites of peace; Air power peace and disarmament; Postscript; Index.

Reviewed by Major F. During, Infantry

General Groves has written a notable, disturbing, and if it be not read with a good deal of concentrated attention, a dangerous book.

The most useful part of General Groves' exposition is his illuminating statement of the new problem of strategy. He shows that the traditional war of fronts has been superseded by the war of areas, in which a decision will be reached, far away from the opposed lines of land forces, by the bombing or gas destruction of vital centers of civilian population. He gives ample proof at this stage of two very hard facts. First, the range and numbers of bombing aircraft, their carrying capacity, and the destructive power of bombs have all increased to such an extent in the last decade that the air raids which had such a marked effect on British morale seventeen years ago will be as nothing to those which would follow were the British to be involved in another European war. Second, there is no certain defense of a city of the size of London by means of small fighting aircraft in combination with antiaircraft gunnery and balloon aprons. General Groves goes into this question very carefully. He shows that to overcome a fleet of bombers, which may approach anywhere within a volume of air four miles high over the area of a square whose side is ten miles, is as hopeful as to look for a needle in a haystack; and, when every allowance has been made for advance in the technique of searchlights, antiaircraft gunnery, and aerial fighting tactics, air exercises in Europe have proved that defense by these means is extremely doubtful except in the most favorable circumstances. His conclusion is twofold. It is idle to rest in the hope that the unlimited air offensive is so horrible that no nation in a future war would resort to it. In an atmosphere of war hysteria everything is possible, and the past has shown that illegitimate action by one force leads inevitably to the justification of reprisals in kind.

In the concluding stages of this book's argument "misguided pacifists" and "defeatists" get roughly handled. It is possible to be grateful for

General Groves' masterly treatment of the facts of air power, and shape them to conclusions exactly the opposite of his. The defense he advocates is not defense, but at most a very precarious and unstable equality in a terrible offensiveness. [London *Times Literary Supplement*, 1 February, 1934]

Kearsey, Lieut.-Colonel A.—**A study of the strategy and tactics of the Mesopotamia Campaign 1914-1917.** Up to and including the capture and consolidation of Baghdad, April, 1917, illustrating the principles of war. England, 1934—192 pages.....

M 9403-J.56-M

CONTENTS: Introduction; Pre-war policy and the inception of the campaign; The capture of Basra and Qurna; Operations for the security of Basra from the west; Operations in Arabistan and the capture of Amara and Nasiriya; Battles of Kut and Ctesiphon; Relief operations and the fall of Kut; Reorganization and resumption of the offensive; Recapture of Kut; Capture of Baghdad; Consolidation of positions captured at Baghdad up to 31st March; Actions between 1st and 30th April 1917, on the west bank of the river Tigris and between the River Tigris and the River Diyala; Illustrations and principles of war, co-operation; Economy of force; Surprise; Security; Offensive action; Index.

Reviewed by Major Jens A. Doe, Infantry

This volume is a brief resumé of the Mesopotamia Campaign, concluded with five short chapters discussing the Principles of War as illustrated by the campaign. It will be useful to instructors and students at this School who are familiar with the official account, but is too brief and lacks suitable maps for a proper study of the Mesopotamia operations. It appears to have been written as an aid to candidates for Staff College examinations.

Larcher, Lieut.-Colonel M.—**Le 1er corps à Dinant, Charleroi, Guise (Aout 1914).** [The I Corps at Dinant, Charleroi and Guise in August, 1914.] France, 1932—217 pages.....

M 9403-H6-C.44-F3-C1C

CONTENTS: Introduction; La campagne du 1er corps d'armée en Belgique; Le 1er corps de la Belgique à la Marne; La retraite de la Belgique à Guise (26 au 29 août 1914); Bataille de Guise: le 29 août 1914; Bataille de Guise: le 30 août 1914; Retraite de Guise à la Marne (31 août au 4 sept. 1914); Conclusion.

Reviewed by First Lieutenant J.I. Greene, Infantry

In this book appear in collected form, Lieutenant Colonel Larcher's two series of articles, which were published in the *Revue Militaire Française* in 1930 and 1931. He recounts in documented detail the history of the French I Corps from 2 August to 3 September.

This Corps, part of the French Fifth Army, affords during the period covered an especially interesting study. As the right wing of the Army, it had an almost independent mission in its defense of the Meuse between Namur and Givet, while the remainder of the Army was facing to the north (instead of the east like the I Corps) between Thuin and Namur. Better than any other equivalent unit of the French forces, perhaps, its successive dispositions and actions exemplify an army corps in a war of movement. As the author says: "It encountered the most diverse and unexpected situations. Often several times in a single day, it had to adapt itself to constantly changing circumstances and execute in the face of the enemy maneuvers that were hard enough to perform even as peacetime exercises."

We may not quite agree when Colonel Larcher also says: "It (the I Corps) met with full success the test of actual open warfare. Its two weeks campaign in Belgium is a model in this regard, the study of which can hardly be other than fruitful." Nevertheless, the I Corps, whose commander was Franchet d'Espérey (Petain was one of the brigade commanders), gave a fine account of itself during the trying period described. On 3 September, d'Espérey took command of the Fifth Army.

Colonel Larcher's book contains almost no discussion regarding things done and not done. He confines himself to a factual account except for a brief tribute to his former corps commander at the end.

Lutz, Ralph Haswell.—**Fall of the German Empire, 1914-1918.**
Volumes I & II. (Translation from the German by David G. Rempel and Gertrude Rendtorff.) 1932.....M 9403-C6-C.43

CONTENTS: Part I—The Empire at War: The outbreak of the World War; The question of war guilt; Propaganda; Censorship; Revision of internal policies; Submarine warfare. Part II—War and Peace: War aims; Peace proposals; Conversations with Herron. Part III—The Armed Forces of the Empire: The Army; The Navy. Part IV—War Diplomacy: The Empire and Belgian relief; The control of Imperial foreign affairs; Negotiations with Bulgaria and Italy; The Kingdom of Poland; The peace of Brest-Litovsk; The Treaty with the Ukraine; Negotiations with Rumania, Turkey, and the Baltic States; The League of Nations. Part V—The Social-Democracy: The Social-Democracy. Part VI—Economic Conditions: Industrial mobilization and general development; "Mitteleuropa"; The food problem; The war loans; The strikes. Part VII—The Collapse of the Empire: The crisis of July 1917; The Reichstag at the last stand; Prussian electoral reform; The Armistice negotiations; The abdication of the Kaiser. Chronology of German political and military events. Index to Volumes I and II.

Reviewed by Major F. During, Infantry

The two volumes of contemporary German sources, covering the period from the outbreak of the World War to the collapse of the German Empire, form the first of a contemplated series of publications on the reorganization of Germany since 1914. A section is devoted to various aspects of propaganda, both German and Allied, in Germany. Censorship is another interesting item, which is given separate consideration. A chapter on the revision of internal policies consists primarily of translated extracts from the German parliamentary proceedings and papers. Part II deals with "War and Peace" and contributes to an understanding of the tortuous road of internal and external discussion over the question of reaching a peace without victory. Here the complex network of various German factions is unfolded, with the government trying to find a middle course between the radical advocates of "peace at all costs" on the one hand, and of large scale conquests on the other. The second volume deals with "Social Democracy," "Economic Conditions," and the "Collapse of the Empire." The translator has produced a very readable English text—an accomplishment which the reviewer knows, from his own experience, to be infinitely more arduous than is usually admitted by critics.

McCormick, Robert R.—**Ulysses S. Grant. The great soldier of America.** 1934—343 pages.....M 9737-E4-C.73-B92 (GR)

CONTENTS: Preface; Acknowledgments; Mexico; The Illinois General; Donelson; Shiloh; The summer campaign of 1862; The great campaign of Vicksburg; Chattanooga; Commander-in-Chief; From the Rapidan to the James; Petersburg; The Valley campaign; From Chattanooga to Nashville and Savannah; Approaching the end; Appomattox; Résumé. Appendix: Geographical Chronology of Civil War battles. Index.

Reviewed by Major J.B. Crawford, Coast Artillery Corps

This work, which comprises some three hundred odd pages, is not a life of Grant, nor even a history of his campaigns. Rather it is a tribute to Grant's character and his ability as a soldier in which the author unmercifully flays Grant's critics and attempts to answer every criticism of him.

"The injustice to his (Grant's) memory is due in part to unconscious political sentiment, but also to malicious and deliberate design," says the author in his preface, and he proceeds to accuse biased historians of using tricks of the trade in disparaging Grant's accomplishments.

Grant's career through the Mexican War is covered briefly in a chapter of about twenty pages, but the conclusion is reached that "Grant had displayed an executive capacity, a personal daring, and an instinct for tactics not equalled by any other junior officer in the army. Nor was this ability equalled in the early lives of any of the other generals who have risen to great fame, unless by Clive of India."

The stories of Shiloh, Vicksburg, Chattanooga, and the campaign from the Wilderness to Appomattox are not told in great detail but are given in an animated style which is characterized by the assertive manner in which comments are made on the leading actors of that drama. "At Chattanooga Grant put in his last man and won a war; at Waterloo Napoleon held out a fraction of his reserve and lost the world." Grant was a great strategist and should be given credit for the conception of the campaign that ended the Civil War—"the most comprehensive campaign of all time." He possessed "battle capacity" in the highest degree. Sherman was a great strategist but lacked "battle capacity." Sheridan was Grant's equal in battle but had no opportunity to display his ability as the commander of a large independent force. For Hancock, Hooker, Meade, et al., Major McCormick has little but criticism. "Strive as he might Grant could not drive them forward." Of Burnside: "the man who failed in every emergency is known only as the originator of a peculiar form of tontorial adornment." Finally Grant is compared favorably with Napoleon and other great leaders of military history.

There are numerous maps. The author is evidently well versed in military history, but few of the references cited give evidence of recourse having been made to primary sources. While open to the criticism of being a biased production it is by no means a dull one.

Moukbil Bey, Commandant.—*La campagne de l'Irak 1914-1918.*

Le Siège de Kut-el-Amara. [The campaign of Irak, 1914-1918. The siege of Kut-el-Amara.] France, 1933—195 pages

M 9403-J.56-M

CONTENTS: Introduction. Part I.—*La campagne de l'Irak: L'entrée en guerre; Le théâtre d'opérations de l'Irak; La situation des belligérants; Chatt-el-Arab; Selman Pak; Kut-el-Amara; Les opérations en Perse et la Mission militaire allemande; Bagdad; Mossoul; Enseignements de la campagne de l'Irak.* Part II.—*Le Siège de Kut-el-Amara: Le théâtre de la guerre et le commandement; Première période (7 décembre 1915-7 janvier 1916); Deuxième période (8 janvier-8 mars 1916); Troisième période (8 mars-22 avril 1916); La reddition de Kut-el-Amara.*

Reviewed by First Lieutenant J.I. Greene, Infantry

This is an interesting and valuable contribution to World War literature, especially in view of the fact that Turkey has had little representation among those who have described specific campaigns as military historians, or written accounts of the parts played by particular units. Major Moukbil Bey says that this fact impelled him to write his book. And there is no doubt that the Turkish soldier deserves his place in the military library; for he, as he has done for centuries on occasion, accomplished wonders of defense, long after conditions had become seemingly unbearable.

Early in his work, the author discusses at some length the complete lack of success that attended the German effort to force a Holy war. It never has been done, he says, and it never will. There was no Mohammedan union, even when an enemy impelled largely by religious motives was the unjust aggressor and invader, as in the Crusades. In the World War, even the Sheriff of Mecca chose to fight with Great Britain against his own nation.

Again, in discussing the fall of Kut, Major Moukbil Bey says that Townshend's offer of a ransom to Halil Pasha was a great blunder, and beclouded the issue. He also goes into much detail regarding the treatment of the 13,000 prisoners taken, stating that it was impossible for the Turkish victors to care for them properly because they had extremely few supplies of their own.

Throughout the book, in fact, its writer presents many details in a different light from that thrown upon his subject by other accounts. He refuses, for example, to give von der Goltz the great amount of credit that has sometimes been accorded to him, and hints that Townshend preferred to ascribe his defeat to "the finest strategist of the Central

Powers," rather than to the Turkish commander who actually conducted the siege and capture of Kut-el-Amara.

Major Moukil Bey's book is exceptional as regards the excellence of its maps. There are 29 of them, all clearly sketched and legible. Major Moukil Bey has furnished a model, which it is to be hoped will be followed.

Tompkins, Colonel Frank.—Chasing Villa. The story behind the story of Pershing's expedition into Mexico. 1934—270 pages
M 973-913-D5

CONTENTS: Introduction; Trouble brews on the border; Madero and Huerta; Wilson and Huerta; The Tampico Affair, the occupation of Vera Cruz and the overthrow of Huerta; Carranza becomes President; Carranza and Villa; Events preceding the Columbus Raid; Villa's raid on Columbus, New Mexico; The pursuit from Columbus; Incidents of the fight at Columbus; Colonel Slocum, U.S. Commander at Columbus attacked and vindicated; Diplomatic exchanges following the raid; Orders for the Punitive Expedition; The Expedition enters Mexico; Campaign of the Three Cavalry Columns from Colonia Dublan—Operations of the 7th Cavalry, March 18 to April 3—The fight at Guerrero; Campaign of the Three Columns—Operations of the Second Squadron, 10th Cavalry, March 19 to 31; Operations of the First Squadron, 10th Cavalry, March 19 to 31; Survey of the Campaign of the Three Columns; Operations of the Second Squadron, 13th Cavalry (Lindsley), March 21 to April 2; Operations of the Provisional Squadron, 10th and 13th Cavalry (Tompkins), March 21 to April 2; The situation after the fight at Guerrero; Operations of the Provisional Squadron, 11th Cavalry (Allen), March 30 to April 15; Operations of the Provisional Squadron, 13th Cavalry (Tompkins), April 2 to 12; Operations of the 10th Cavalry, March 31 to April 15—The fight at Aguas Calientes; Operations of the Provisional Squadron, 11th Cavalry (Howze), April 3 to 15; Rendezvous at Santa Cruz de Villegas; Operations of the 7th Cavalry near Guerrero—The fight at Tomochic; The cavalry withdraws to the north—End of the chase; The new plan; Behind the scenes with the politicians; The killing of Cardenas and Cervantes; The fight at Carrizal; The evacuation of Mexico; The National Guard on the Mexican Border. Appendices.

Reviewed by Major F. During, Infantry

The author pictures in a vivid manner the record-breaking marches of the troops in the trackless wilderness of northern Mexico, in the blazing heat of the days and the freezing cold of the nights, pushing ever towards their goal through alternating blizzards and sandstorms. The hardships of men and horses from hunger, thirst, cold, heat, and exposure are portrayed; the struggles of the new motor transport in the sandy deserts and muddy sloughs, and the dependability of the old reliable army mule. Both motor transport and aviation had their first real test in the expedition into Mexico.

General Pershing writes—"Tompkins' book is intensely interesting because it covers a period of activity in which our Cavalry was engaged on foreign soil, and describes its record of adverse conditions of lack of forage, food and water among an unfriendly people."

In a foreword, Major General J.G. Harbord states—"The Cavalry seems on its way out. They have mechanized its historic First regiment, and its ideal is now General Motors instead of General Sheridan. . . . Colonel Tompkins' book can hardly fail to be a stirring account of the last time that our Cavalry guidons will ever flutter in a foreign land."

Volckheim, Lieutenant.—Deutsche Kampfwagen im Angriff 1918.
[German tanks in attack, 1918.] Germany, 1934—156 pages
M 9403-G5-J1-A.43

CONTENTS: Vorwort; Der erste Einsatz deutscher Kampfwagen; Angriffschlachten deutscher Kampfwagen: A—Die Schlacht bei Villers-Bretonneux (24. 4. 1918); B—Schlacht bei Soissons und Reims (Angriff auf Fort Pommelle [1. 6. 1918]); C—Schlacht zwischen Montdidier und Noyon (Die Schlacht an der Matz, 9. 6. 1918); Erfahrungen und Folgerungen; Schluss.

[Foreword; The first entry in action of German tanks; Offensive battles of German tanks: A—The battle at Villers-Bretonneux (24 April 1918); B—The battle at Soissons and Reims (the attack on Fort Pommelle, 1 June 1918); C—The battle between Montdidier and Noyon (the battle of the Matz, 9 June 1918); Experiences and conclusions: tanks, employment, organization, training; Conclusion.]

Reviewed by Major S.J. Heidner, Infantry

This pamphlet is one of a series, *Kriegslehrer in Beispielen aus dem Weltkrieg*, [War lessons in examples taken from the World War], edited

by Lieutenant General Schwarte, German Army, retired, for the purpose, he states, of making it easier to understand thoroughly the service regulations and to give life to their abstract and most prosaic contents. Since General Schwarte is a recognized authority on World War history, his sponsorship of this study lends weight to its contents.

Lieutenant Volkheim has chosen for study three German tank operations from which he thinks can be learned the most useful lessons for the future employment of tanks. He gives a detailed narrative of the part played by the tanks in these operations, beginning with the plans of the higher commanders for the employment of the tanks, and terminating with an account of the action of each separate tank during the battle. The greatest number of tanks used in any of the above engagements was 19: 10 heavy (A 7 V) German tanks and 9 captured British heavy tanks. He relates the following remarkable account of the accomplishments of one German tank at Villers-Bretonneux on 24 April, 1918: "Tank No. 5 . . . pushed forward over the first hostile line and 'rolled up' the opposing trench. In doing so it made 30 prisoners and killed a number of British soldiers. In spite of determined resistance, it then captured the so-called 'Fork Trench' and made 40 prisoners. Then it moved on a strongly organized farm and although it was having motor trouble, reached the forward gardens of the farm after reducing a number of machine-gun nests. After that it was still able to break strong resistance south of the railroad station and to make prisoners of 1 officer and 174 men. Then, when the motors stalled due to a clogged fuel feed line, the tank commander and the crew left it and moved forward as a combat squad. . . ."

The author concludes his study with a thorough critical analysis of the operations previously described. His deductions are clear and logical. For example, he shows that, aside from the mechanical break-downs of World War tanks, the most frequent cause of their failure was due to their becoming stalled in wide trenches, in large craters, or on other unfavorable terrain. Such stalling of tanks, he finds, was largely avoided in those operations where the most favorable terrain was selected for the tank attack, and where, by careful reconnaissance and the study of airplane maps, routes for the advance of the tanks were determined beforehand. He believes that in future mobile situations the greatest possible use of aerial reconnaissance and aerial photographs must be made in planning tank operations if they are to be successful. He finds also that best results were obtained where infantry and tanks had been carefully trained together. Such training, he states, is not only necessary to assure the success of offensive actions, but it also gives the infantry the knowledge of tanks which it needs to defend itself against attacks by hostile tanks.

Not much has been written about German tanks in the World War, no doubt, because they never appeared in sufficient numbers to exert a noticeable influence on the war. The very fact of their scarcity, however, caused the Germans to give much thought to the employment of the few tanks that they were able to bring into action, and, for this reason, there should be some valuable lessons to be learned from a study of these tank actions. Lieutenant Volkheim has made a good job of such a study.

v. Wehrt, Rudolf.—**Tannenberg. Wie Hindenburg die Russen schlug.** [Tannenberg. How Hindenburg defeated the Russians.] Berlin, 1934—275 pages.....M 9403-J.47:4-R4

Reviewed by Major F. During, Infantry

The author has made full use of material from the Reichsarchives in writing a concise but most interesting book covering the period from the beginning of the War to the end of the Battle of Tannenberg. The happenings on the Russian side are treated in great detail, and the heretofore unpublished manuscripts from the Russian Historical Archives were consulted for this purpose, as were those of General Mingin, commander of

the Russian 2d Division, which confronted the German XX Corps. The difference between the calm but determined German leadership and that of the uncertain and vacillating Russian is vividly portrayed. On the other hand, the author does not hesitate to bring out the crisis on the German side during the battle. It is of interest to note that the Russian reports repeatedly mention the intense activity of the German aviators. It may be remembered that Hindenburg himself has said, "Without flyers —no Tannenberg."

Section 7
LIBRARY BULLETIN

BOOKS ADDED TO THE LIBRARY SINCE MARCH, 1935

All the World's Aircraft, 1934. Edited by C.G. Grey. 1934 [M 603]

Andrews: The Colonial Period of American history. Vol. I: The settlements. 1935 [973.20]

Archibald: Heaven high—Hell deep: 1917-1918. 1935 [M 9403-B4.78]

Army War College: Translations of war diaries of German units opposed to the Second Division (Regular). Blanc Mont. Vols. 7 and 8. 1934 [M 9408-H6-C.73-G3-C2D]

Barnard: Notes on seacoast defence; consisting of seacoast fortification, the 15" gun, and casemate embrasures. 1861 [M 604-C8-C]

Bauer: Leopold the Unloved. King of the Belgians and of wealth. 1935 [M 9498-B92 (LE)]

Bedoyer: Lafayette: A Revolutionary gentleman. 1934 [M 9733-E4-C.73-B92 (LA)]

Bentley: A dictionary of Spanish terms in English. With special reference to the American Southwest. 1932 [463]

Berndt: Die Zahl im Kriege. [Numbers in war.] 1897 [M 901-E]

Bishop: Field Artillery—The King of battles. 1935 [M 407-J1.73]

Bogardos: Leaders and leadership. 1934 [M 501-G1.78]

Braun: Das Bataillons-Gefecht. Neue taktische Aufgaben mit Rahmen des verstärkten Bataillons. [Tactical lessons for a reinforced battalion.] 1934 [M 404-J1-C3-E.43]

Brett: The history of British aviation, 1908-1914. 1934 [M 409-C.42-C]

Bulow: Geschichte der Luftwaffe. Eine kurze Darstellung der Entwicklung der fünften Waffe. [History of the Air Arm. A short history of the development of the fifth weapon.] 1934 [M 409-C.43-C]

Bulygin: The murder of the Romanovs: The authentic account. Including The Road to the Tragedy, by Alexander Kerensky. 1935 [M 9403-C1-D.47-R]

Canadian Annual Review of Public Affairs, 1934. 1934 [971.05]

Chemical Foundation: The future independence and progress of American medicine in the age of chemistry. 1921 [615]

Clark: The Great Wall crumbles. 1935 [M 951]

Clement-Grandcourt: La guerre de fortresse sur le front russe. A propos de Nowo-Georgiewsk (Modlin). [Fortifications on the Russian Front. A study of the battle of Nowo-Georgiewsk.] 1928 [M 9408-J.47:5-P]

Commerce, Dept. of: Railway and highway transportation abroad. A study of existing relationships, recent competitive measures and coordination policies. 1935 [656]

Commission on Cuban Affairs: Problems of the new Cuba. 1935 [972.91]

Congress: Official Congressional Directory for the use of the United States Congress, 1934. 1934 [328.736]

Court of Claims: Cases decided in the Court of Claims of the United States, May 30, 1933 to March 4, 1934. Vol. LXXVIII. 1934 [845.41]

Crecraft: Freedom of the seas. 1935 [M 007-C5]

Desbrière: The naval campaign of 1805. Trafalgar. (Translated and edited by Constance Eastwick). (2 vols.) 1933 [M 9405-J5-C8]

Eddy: Russia today. What can we learn from it? 1934 [947.09]

Engineer School: Military handbook for National Guard and Reserve Engineers. 1934 [M 410-H1-C]

Federal Reporter. Vol. 73, 2d Series. 1935 [845.41]

Federal Supplement. Vol. 8: November 1934—January 1935. 1935 [845.41]

Field: Echoes of old wars. Personal and unofficial letters and accounts of bygone battles, both by land and on sea, by those that were there, 1513 to 1854. A martial anthology. 1934 [M 904-C.42]

Fortescue: Napoleon's heritage. An ethnic reconstruction which explains his mortal duel with England. 1934 [M 94405-N]

Fradkin: The air menace and the answer. 1934 [M 409-J4-F]

France. Ministere de la Guerre:

Manuel de Preparation militaire superieure. 1re année. [Superior military manual for all arms and services.] 1934 [M 506-A4.44]

Manuel de Preparation militaire superieure. 2e année. Infanterie. [Superior military manual for infantry.] 1934 [M 506-A4.44]

Manuel de Preparation militaire superieure. 2e année. Artillerie. [Superior military manual for artillery.] 1934 [M 506-A4.44]

Manuel de Preparation militaire superieure. 2e année. Cavalerie. [Superior military manual for cavalry.] 1934 [M 506-A4.44]

Manuel de Preparation militaire superieure. 2e année. Génie. [Superior military manual for engineers.] 1934 [M 506-A4.44]

Fuller: The breech-loader in the service. The development of one hundred and one years, 1816-1917. A description of the breech-loaders and magazine arms used in the Service and the different systems tested by the Ordnance Boards. The development of the interchangeable system of manufacture. 1933 [M 614-F3]

Ganoe: Soldiers unmasked. 1935 [M 206-C.73-E6]

Germany. Reichsluftschutzbundes: Luftschutzfibel. [Antiaircraft primer.] 1935 [M 503-C6]

Gesterding: Zwanzig Offizierthemen. Ein Handbuch für den Offizierunterricht. [Twenty subjects for the training of officers.] 1935 [M 209-C.48-C]

Goetz: Das Zeitalter des Imperialismus, 1890-1933. [The era of Imperialism.] 1933 [M 940-A]

Graasset: La Bataille des deux Morins. Franchet d'Esperey à la Marne 6-9 septembre 1914. [The battle of Petite Morin and Grande Morin. Franchet d'Esperey at the Marne, 6-9 September, 1914.] 1934 [M 9408-J.44:4N5M]

Great Britain. Committee on Imperial Defence: Military operations, France and Belgium, 1918. The German March offensive and its preliminaries. (Official History of the Great War Based on Official Documents.) (3 vols.) 1934 [M 9403-E4-D.42-C]

Graves: Claudius the God and his Wife Messalina. 1935 [M 937-B92 (CL)]

Grosse Brockhaus. Vol. 29: WAN—ZZ. 1934 [084.3]

Guggenheim: The United States and Cuba. A study of international relations. 1934 [527.73 (.7291)]

Heydemarck: Flieger im Westen. [Flyers in the West.] 1931 [M 9403-G9-C.43]

Hube: Der Infanterist. [The infantryman.] (2 vols.) 1934 [M 404-J1-C1.43]

Hudson: The World Court, 1921-1934. A handbook of the Permanent Court of International Justice. 1934 [M 007-G4]

Interstate Commerce Commission: Annual report of the statistics of railways in the United States for the year ended December 31, 1933. 1935 [385.73]

Jane's Fighting Ships, 1934. 1935 [M 8205-A.42]

Japan Year Book, 1934. 1935 [315.2]

Jessup: International's security. The American rôle in collective action for peace. 1935 [M 007-G6]

Johnson: The Blue Eagle from egg to earth. 1935 [973-A]

Knickerbocker: The boiling point. Will war come in Europe? 1934 [M 008-A]

Kuhl: Entstehung, Durchführung und Zusammenbruch der Offensive von 1918. [The formation, conduct, and collapse of the offensive of 1918.] 1927 [M 9408-J.44:8-G]

Littauer: Riding forward. Modern horsemanship for beginners. 1935 [M 403-G4.47]

Loughead: **Dictionary of given names with their origins and meanings.** 1934 [903]

Ludwig: **Hindenburg.** (Translated from the German by Eden and Cedar Paul.) 1935 [M 9408-E4-E.43-B32 (HI)]

MacDonnell: **Napoleon and his Marshals.** 1934 [M 94405-N3-C]

Mangin: **Un regiment Lorrain. Le 7-9. Verdun-La Somme.** [Verdun—The Somme.] 1934 [M 9408-J.44-6]

Martin: **Farewell to revolution.** 1935 [323.2]

Meisner: **Der preussische Kronprinz im Verfassungskampf, 1863.** [The German Crown Prince during the reorganization of the Constitution in 1863.] 1931 [M 943-07]

Ménard: **Guide a l'usage de l'officier de renseignements regimentaire d'infanterie.** [Manual for intelligence officers of infantry regiments.] 1933 [M 404-D6.44]

Monteith: **Methods and procedure in Federal purchasing.** 1933 [336.78]

National Advisory Committee of Aeronautics: **Bibliography of Aeronautics,** 1931. 1932 [M 608]

Naval War College: **International law situations with solutions and notes,** 1933. 1933 [M 007-C5]

Nerval: **Autopsy of the Monroe Doctrine.** The strange story of Inter-American relations. 1934 [327.73 (C)]

Operations on the Vistula in August 1920. A collection of articles translated from the Polish into Russian and translated from the Russian at the Army War College. 1934 [M 9438-051]

Pearson: **The American diplomatic game.** 1935 [327.73 (A)]

Pease: **Pole to Panama.** An appeal for American imperialism and a defense of American capitalism. [M 008-C4]

Peffer: **Must we fight in Asia?** 1935 [M 950]

Political Handbook of the World, 1935. Parliaments, Parties and Press. 1935 [354]

Pückler-Burghaus: **Kurzgefasste Geschichte der 5. Kavallerie-Division während des Bewegungskrieges August 1914-November 1915 unter besonderer Berücksichtigung des Leib-Kurassier-Regiments "Grosser Kurfürst" (Schles.) Nr. 1.** [Short history of the 5th Cavalry Division.] 1935 [M 9408-G6-C.43]

Rabenau: **Operative Entschlüsse gegen einen an Zahl überlegenen Gegner.** [Operative decisions against a numerical superior enemy.] 1933 [M 503-D3]

Renouvin: **La crise Européenne et la grande guerre (1904-1918).** [The European crisis and the World War (1904-1918).] 1934 [M 9408-C3-C.44]

Riebicie: **Ringen an der Somme.** Das seelische Erleben eines Frontkämpfers. [Fighting at the Somme.] 1928 [M 9408-J.44-6-N]

Rouquerol: **Le 3e Corps d'Armee de Charleroi à la Marne.** Essai de psychologie militaire. [Les combattants et le commandement. (The III Army Corps at Charleroi and the Marne. Essay on military psychology.)] 1934 [M 9408-H6-C.44-F2-C3C]

Rowan-Robinson: **The infantry experiment.** 1934 [M 404-J1-A.42]

Rüstow: **Geschichte der Infanterie.** [History of infantry.] 1864 [M 404-C.43-C]

Rustung der Welt 1935. [World disarmament.] 1935 [M 205-A]

Salmon: **Les operations en 1918 sur le front occidental et dans les Balkans.** [The operations of 1918 on the Western Front and in the Balkans.] 1932 [M 9408-J.44-8-A.44]

Schmidt-Bückeburg: **Das Militärkabinett der preussischen Könige und deutschen Kaisers.** Seine geschichtliche Entwicklung und staatsrechtliche Stellung, 1787-1918. [Military cabinet of the German Emperor, 1787-1918.] 1933 [M 204-C.43-E2]

Schmittenhener: **Krieg und Kriegsführung in Wandel der Weltgeschichte.** [War and conduct of war in world history.] 1930 [M 904-C.43]

Schoszberger: **Bautechnischer Luftschutz.** [Construction in antiaircraft defense.] 1934 [M 503-C6]

Schuller: **Erinnerungen eines Feldarztes aus dem Weltkrieg.** [Memories of a medical officer in the World War.] 1934 [M 9408-G21-C.43-A]

Shankle: **State names, flags, seals, songs, birds, flowers, and other symbols.** 1934 [973-A]

Simonds: **The price of peace.** The challenge of economic nationalism. 1935 [M 008-C5]

Smith: **A captain departed.** 1935 [M 9403-B4.42]

Sorge: **Krieg entbrennt am Pazifik.** [War in the East.] 1934 [M 951-065]

Stone: **A glossary of the construction, decoration and use of arms and armor in all countries and in all times.** Together with some closely related subjects. 1934 [M 614-A3]

Sullivan: **Army posts and towns.** 1934 [M 203-C.73-E]

Tettau: **Kuropatkin und seine Unterführer.** Kritik und Lehren des russisch-japanischen Krieges. [Kuropatkin and his subordinate commanders. Critique and lessons of the Russo-Japanese War.] (2 vols.) 1913 [M 952-066-H5-C.47]

Thouvenin: **L'Artillerie nouvelle.** Munitions—Tir—Matériels. [The new artillery. Munitions—fire—matériel.] 1934 [M 407-C.44]

Tippelskirch: **Kraftfahrfibel.** [Training manual for motorized units.] 1935 [M 506-A4.43]

United States Reports. Vol. 292. 1934 [345.4]

Vanegue: **Memento du chef de bataillon.** [Manual for battalion commanders.] 1935 [M 209-C.44-C6-E]

Vauthier: **La doctrine de guerre du General Douhet.** [The doctrine of war of General Douhet.] 1935 [M 409-J1-A.44]

Volmer: **Lietfaden für den freiwilligen Arbeitsdienst.** [Guide for the Voluntary Labor Service.] 1932 [M 307-C.43]

Wells: **The shape of things to come.** 1933 [519.4]

Werfel: **Forty days of Musa Dagh.** (Translated from the German by Geoffrey Dunlop.) 1934 [M 9403-B3-F.56]

Werth: **France in ferment.** 1935 [M 944-A]

Who's Who 1935. (International) 1935 [942-B920]

Wright: **The pinnacle of glory.** 1935 [M 94405-N8-D]

Zaitzoff: **Die Rote Armee.** [The Red Army.] 1934 [M 203-C.47]

Section 8

READERS' GUIDE AND SUBJECT INDEX

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Key to Abbreviations

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A&N Reg —Army & Navy Register	Pion —Pioniere (Germany)
A Ord —Army Ordnance	QM Rev —Quartermaster Review
A Quar —Army Quarterly (Great Britain)	Rev Ej Mar —Revista del Ejercito y de la Marina (Mexico)
Bul Belge Mil —Bulletin Belge des Sciences Militaires (Belgium)	Rv l'Air —Revue de l'Armee de l'Air (France)
Can Def Quar —Canadian Defence Quarterly (Canada)	Rv d'Art —Revue d'Artillerie (France)
Cav Jour —Cavalry Journal	Rv de Cav —Revue de Cavalerie (France)
Chem War —Chemical Warfare Bulletin	Rv d'Inf —Revue d'Infanterie (France)
CA Jour —Coast Artillery Journal	Rv Gen Mil —Revue du Genie Militaire (France)
E e Naz —Esercito e Nazione (Italy)	Rv Mil Fran —Revue Militaire Francaise (France)
FA Jour —Field Artillery Journal	Rv Mil Suisse —Revue Militaire Suisse (Switzerland)
Ftg Foro —Fighting Forces (Great Britain)	Riv Art e Gen —Rivista di Artiglieria e Genio (Italy)
Inf Jour —Infantry Journal	RAF Quar —Royal Air Force Quarterly (Great Britain)
Inf Sch ML —Infantry School Mailing List	Roy Eng Jour —Royal Engineers Journal (Great Britain)
Jour R Art —Journal Royal Artillery (Great Britain)	Roy Tk C Jour —Royal Tank Corps Journal (Great Britain)
Jour RUSI —Journal of the Royal United Service Institution (Great Britain)	Sanct Chris —Sanct Christophorus (Germany)
Jour USII —Journal of the United Service Institution of India (Great Britain—India)	SC Bul —Signal Corps Bulletin
MC Gaz —Marine Corps Gazette	Vet Bul —Veterinary Bulletin
Mil Mitt —Militärwissenschaftliche Mitteilungen (Austria)	Wr & Wf —Wehr und Waffen (Germany)
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